AUGUST, 1942

fuel oil & oil heat

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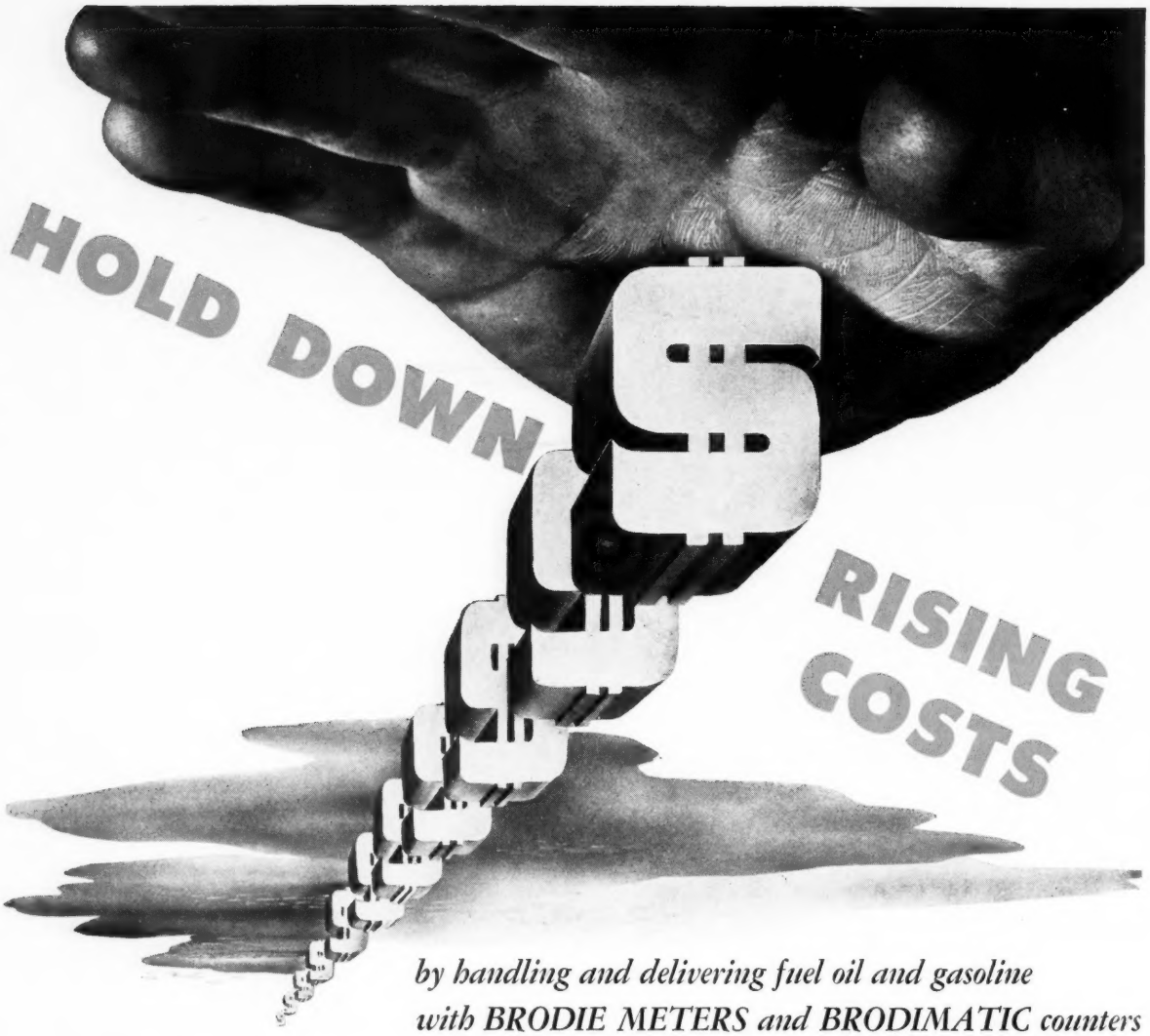

by handling and delivering fuel oil and gasoline
with BRODIE METERS and BRODIMATIC counters

With sharply rising costs and narrowing margins now at hand, as the result of marketing restrictions and limitations, Brodie Meters and Brodimatic Counters are proving indispensable in handling and dispensing fuel oil and gasoline. On transfer and delivery operations time-losses and stock-losses are reduced to a minimum. More efficient routing and recording of scheduled deliveries conserves tank-truck mileage, saving manpower, equipment and rubber. To derive profits from savings–hold down rising costs with Brodie Meters.

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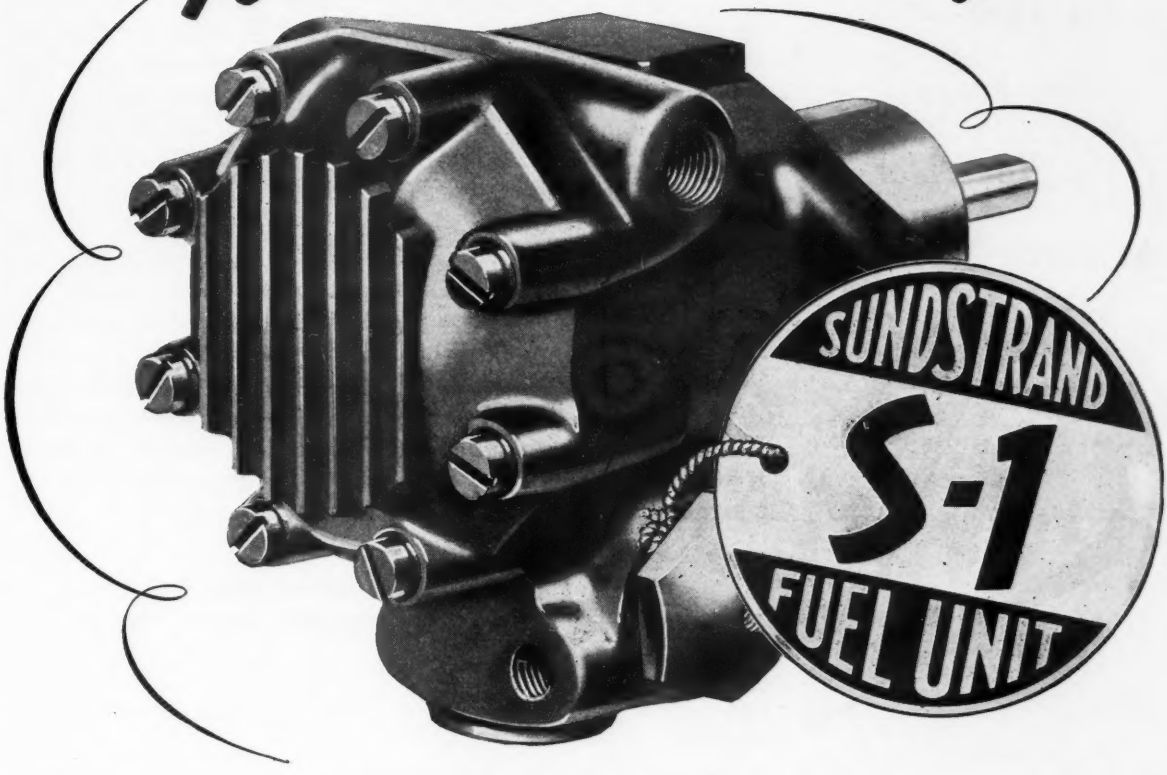


For Putting New Pep Into Old Oil Burners

With new oil burner installations out of the question, dealers and service shops can still do a lot of good business reconditioning and improving millions of burners already installed. For a most important part of this work you can get — NOW — Sundstrand Fuel Units in capacities up to 25 gallons per hour, for all types of bracket and foot mounting, for right-hand or left-hand rotation. These Units put brand new pep and improved performance into this vital part of gun-type burner operation. Important advantages listed at right. Complete information contained in Bulletin S-12 — *write for your copy, today.* Heating season starts in a few weeks — *now* is the time for reconditioning, NOW is the time to get new Sundstrand S-1, single-stage, and S-2, two-stage, Fuel Units, or separate Rota-Roll Pumps, while still available.

2-Stage Performance
Steady Pressure
Quick Clean Cut-Off
Quiet Operation
Saves Servicing
Precision-Built
Easy To Install
Economical

The Rota-Roll Pumps used in Sundstrand Fuel Units, single- and double-stage are patented and manufactured only by Sundstrand.

Sundstrand Pump Division

2538 Eleventh Street, Rockford, Illinois, U. S. A.

SUNDSTRAND MACHINE TOOL CO. S ROCKFORD, ILLINOIS, U.S.A.

fueloil & oil heat

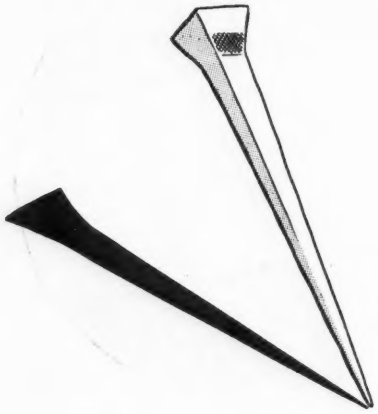
"FOR WANT OF A NAIL"

...the shoe—,

the horse—,

the rider—,

the battle was lost!



● But, our fighting men will not "want." We will give them the weapons for victory *now.* It calls for a greater stream of production than American Industry has ever before envisioned.

This means that we have got to *save what we have*... make it serve efficiently... and make it last... so there will be materials for planes, tanks, ships, guns and shells.

It means that *conservation* is the biggest word in the heating industry today. Military and essential defense housing will take available new equipment. To protect the health and sustain the morale of our civilian population calls for alert, intelligent servicing of existing heating plants.

Here is a challenge to your patriotism... and to your foresight. For the dealers and service men who do this job today will be the ones who capitalize on the tremendous post-war demand. It means business for you now—*profitable* service business—and a bigger opportunity in the days to come.

IT'S UP TO YOU TO SAVE THE HEATING PLANTS OF AMERICA, NOW!

Make a survey in your territory. Urge upon owners the importance of action now, to get necessary parts, to make heating plants ready for efficient service next fall. Your survey will develop business for the present —and prospects for the future.

● CLEAN AND OVERHAUL

A *thorough* cleaning means more efficient operation, will reveal the necessity for any repairs which should be made now, to prevent a possible breakdown during the heating season. This is your most logical point of contact with the owner.

● REPAIR AND RECONDITION

Use your ingenuity and skill to make present equipment operate as efficiently as possible. Remember, every pound of material, every man-hour of productive labor you save helps the men who are hammering out the victory—on land and sea and in the air.

● REPLACE, WHEN NECESSARY

Priority regulations enable the replacement of parts and accessories which cannot be made to function properly. For automatic heating equipment Penn is prepared to supply, under the established rules, the controls which may be needed for efficient, economical operation of the system.

Conserve for Victory! *Penn Electric Switch Co., Goshen, Indiana.*

VOL. I NO. 4

fueloil & oil heat

AUGUST 1942

Names in the news

William E. Mosher has been elected president of the United States Radiator Corp., Detroit, to succeed the late Elwood S. White. James F. McIntire was elected first vice-president. Both men have served as officers and directors of the corporation for many years. Mr. McIntire was also elected president of the Pacific Steel Boiler Corp., succeeding Mr. White, former president.

Robert T. Collier, formerly division manager for Shell Oil Co., Inc., in California, and recently vice-president of the Great Lakes Carbon Corp., is the new director of marketing for the Office of Petroleum Coordinator for War. He succeeds Dr. John W. Frey, who has been made a special assistant to Deputy Petroleum Coordinator Ralph K. Davies.

Willard W. Wright, New England regional manager for Sun Oil Co., was recently honored with a dinner and presentation of a 20-year emblem in recognition of that length of company service.

Penn Electric Switch Co., Goshen, Ind., announces that its Boston office has been moved, July 1, to 50 Hunt St., Watertown, Mass. A. W. Barr is manager.

James C. Richdale, vice president of Colonial Beacon Oil Co., Boston, has been appointed a consultant to the Office of Defense Transportation, according to Joseph B. Eastman, director of ODT. Mr. Richdale will handle matters relating to the fueloil supply for the New England area.

Walter P. Hedden has been named consultant to Fayette B. Dow, director of the Division of Pipe Lines, Tankers, Tank Cars and Tank Trucks, of the CDT. Mr. Hedden is Director of Development for the Port of New York Authority, an instructor in economics at Columbia University and an authority on inland waterway transportation.

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Editorial leaks

Those who want domestic oilburners converted to coal are barking up the wrong tree. That does not mean that conversions are not necessary—or that they are—but the fact that nobody in more than 60 days of pleading, and now threatening, has taken the trouble to give the trade and the public the facts, leaves both of them confused and apathetic.

If Americans have the guts to win this war, and we know they have, they are not easily scared. Browbeating and threatening statements about converting oil-fired heating plants make them yawn. It all sounds suspiciously as though somebody has something to sell, but doesn't dare tell the truth about it.

Enormous pressure now is being generated to frighten the oilburner user. Government agencies are cooperating beautifully to surround the user, and about all that remains is to beat him into saying "Uncle." Consider the set-up:

Almost every edition of the newspapers carries a statement by a government official or other "authority" that there is to be an oil shortage varying in severity from 100,000 to 400,000 barrels a day. To most people that doesn't sound like much in these days of billions.

The Federal Reserve Board has liberalized credit terms to make conversions possible at nothing-down, five-years-to-pay.

OPA has held up any decision on the price of service. A family that has just had a thorough overhaul performed on the burner is less likely to take it out.

Oil deliveries have been prohibited from August 3 to September 15 "to build up oil stocks." Since you can't hoard oil in a 275-gallon tank, the best place to build up stocks would be in customers' basements and leave bulk plants free to receive a reserve. But this obviously is a part of the whole scare campaign. People with full tanks don't frighten so easily.

Then Brig. General Brice Disque of the Solid Fuels Coordinator's Office let a small cat out of the big bag when he promised coal miners on July 30 that conversions soon would be made compulsory. Of course, this was denied out of Washington, but it had been an open secret for days that the plan was under consideration. The information allowed to leak out was that people who could convert, but refused to do so, would be denied oil next winter, and President Roosevelt was pressed into service to make the rumor official on August 1. He said that if enough of those who can convert do not do so, it may be necessary to force the action by withholding oil from them. At the same time dispatches told of plans to convert dry-cargo barges to carry oil. Once more, in the minds of hopeful oilburner users, the scales are in balance.

Nobody has yet demonstrated that conversions will solve the Eastern fuel shortage this winter. Until that is shown, or conversions are made compulsory, there is little hope of action. It is already apparent that shouting "Boo" at oilburner users is a waste of valuable time.

◈

An effort was made by the Office of Price Administration to have ready for announcement in this issue an interpretation of policy on pricing of oilburner service. Unfortunately it couldn't be done. There were too many side issues to be weighed, not least of which was the feeling that if some homeowners are to be forced to convert to coal, it would be wrong to sell them service contracts or summer overhaul jobs; in other words, the service price decision should wait for the final decision on oil supply.

Meanwhile, the original order covering all consumer services, including oil burner service, has been in effect since July 1; under its terms, service price ceilings cannot exceed those charged in March—free service then is free service today.

Most men in OPA recognize the difficulty of enforcing this provision . . . know it is unfair, yet in wartime many things must be unfair to some.

OPA lawyers know that free service was never an outright gift, that it was instead a leverage to get oil business, in other words a sales expense. Hence, they consider it only reasonable that if it is done away with, the price of oil should be correspondingly reduced. In view of OPA's main reason for existence, the prevention of inflation by prohibiting price raises, direct or indirect, the attitude of its lawyers is understandable.

But on that point it is unrealistic. It's the oilheating users who will suffer most if an equitable oilburner service plan is not forthcoming soon. Now that it's no longer possible to sign oil contracts, with or without inducements, free service becomes purely a gift, and the dealers' business has been too hard hit to afford gifts at present.

Unless dealers can break even or get a small profit from service work, most will discontinue it. So the whole problem becomes one of consumer hardship; unserviced burners will waste fueloil.

In one traditionally free-service market, Baltimore, two large fueloil companies are taking IOU's for service work, these to be paid later if OPA rules out free service. Other large operators in that city are collecting cash for the work, giving the customers ICU's for refunds if OPA rules the other way. Customers are reported to be cheerfully willing to pay, an important point.

◈

Some representatives of Anthracite Industries will swear to you that coal men do not want the additional load that converted oilburners will impose. They cross their hearts and hope to die if they aren't urging it only as a patriotic duty.

It is probably only coincidence that they want to remove all traces of oilfiring from the converted installations.

Coal utilization engineers recently frowned officially on conversions that use the oilburner fan for forced draft. They object because they want substantially the whole grate area used, and because they want to produce an output equivalent to a burning rate of 7 lbs. per hour per original square foot of area.

Objections, if any, should be on more solid ground. One test of Convert-O-Grate recently burned 25.6 lbs. per square foot, or more than three-and-a-half times the minimum standard.

◈

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Knee-deep in trouble . . . with pleasure!

IT IS A COMMON SIGHT to see Mack trucks do things that, for most trucks, would be near-miracles. Why does this happen so often? The reason is simple. *A Mack is more truck to begin with.* We do not build Macks just to stay even with somebody else, but to be beyond all doubt or question the *best* trucks in the world. *And an unequalled record stretching back over forty years says that's exactly what Mack trucks are!*

Mack Trucks, Inc., Long Island City, N. Y.

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TRUCKS

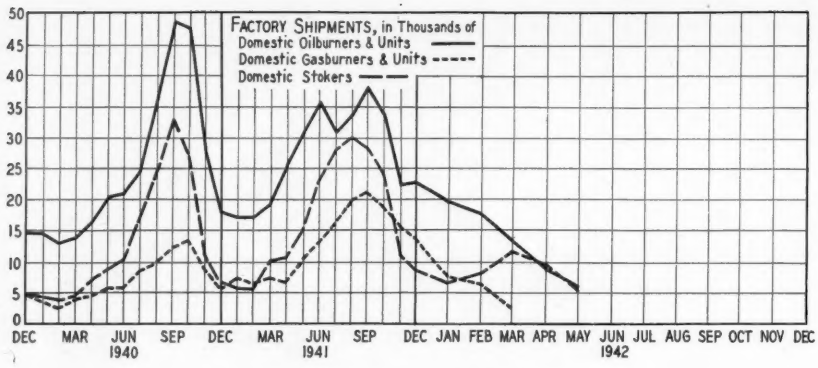
FOR EVERY PURPOSE

ONE TON TO FORTY-FIVE TONS

BUY U. S. WAR BONDS

IF YOU'VE GOT A MACK, YOU'RE LUCKY . . . IF YOU PLAN TO GET ONE, YOU'RE WISE!

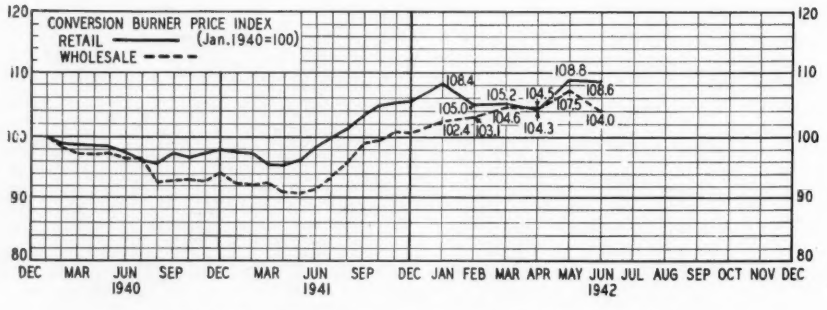
fueloil & oil heat



Shipments of Oilburners and Units

Adjusted to include manufacturers other than the 148 reporting to Census Bureau, FUELOIL & OIL HEAT's estimates of shipments are:

	MAY			FIVE MONTHS		
	1942	*1941*	*Percent Change*	*1942*	*1941*	*Percent Change*
Conversion	3,351	23,849	—86.0	49,549	86,490	—43.2
Boiler units	165	3,776	—95.6	5,587	11,302	—50.5
Furnace units	1,841	4,067	—54.8	9,934	13,892	—28.5
All domestic	5,357	31,692	—83.0	65,070	111,684	—41.8
Commercial	5,845	3,387	+72.5	23,343	12,814	+82.3
Total	11,202	35,079	—68.2	88,413	124,498	—29.0



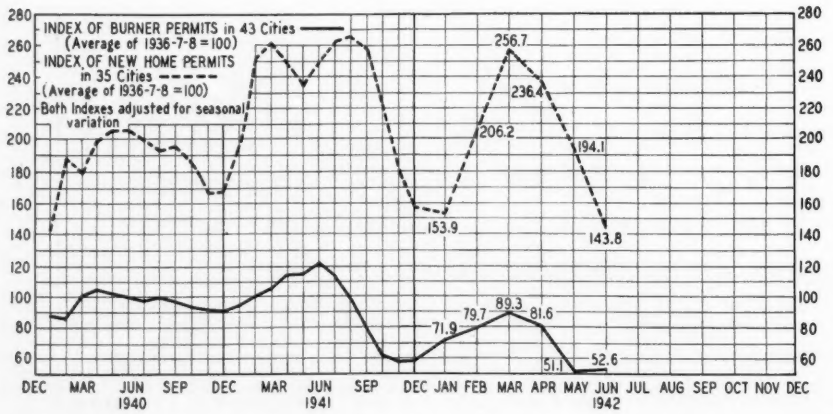
Price Index: Conversion Burners: Jan. 1940 is 100%

	WHOLESALE				RETAIL			
June	104.0	Six months ago	100.9		June	108.6	Six months ago	105.8
May	107.5	Year ago	91.5		May	108.8	Year ago	98.4

June Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS		BOILER-BURNERS		FURNACE-BURNERS	
	Top price	*Low price*	*Top price*	*Low price*	*Top price*	*Low price*
Highest	$338	$195	$550	$395	$555	$398
Lowest	200	159	425	325	425	245
June Aver.	256	178	462	375	470	331
May Aver.	259	181	503	388	477	332

Top price dealers have minimum retail prices of $200 or over on conversion burners; of $400 or over on boiler- and furnace-burners (less ducts).



Trend of sales

WITH NOTHING NEW in restrictions from Government bureaus in June, sales of oilburners and units went ahead very slowly; most business seems to have been replacements, as permitted under L-79, Amended. New home installations, which accounted for fair volume in April and May had practically stopped in June, as most houses which had been under construction last winter, when oilheating was virtually ruled out for new housing, were completed.

With oilburner permits in 38 cities down 74% and the average of all reporting key dealers down 85% from a year ago, it appears that June sales were 80% below a year ago, or 7,264 installations this year against 36,319 last. May, this year, had about 10,140. The average reporting key dealer in June sold 3 jobs; 48% of the dealers sold none.

PRICES: Retail prices were down moderately during the month; wholesale prices went off considerably, bringing them back to the March level, where price ceilings are supposed to hold them. The March wholesale index was 104.6; June 104.0. In between it had climbed up to 107.5.

STOCKS: The average key dealer had on hand at the end of June 41 oilburners and integral units, while at the beginning of the month he had only 18. This indicates a strong shift of the country's stocks from the hands of manufacturers to dealers, a shift that might have been foreseen. With manufacture stopped and the factories getting into war work, it is advantageous for the manufacturer to not only get the money out of his stocks, but also to gain the floor space they occupied. The dealer, knowing that total stocks are limited, wisely went buying in June, stimulated by lower wholesale price. Total burner and unit stocks at June end were about 80,400.

SERVICE INCOME: The average key dealer had service department income in June of $1,981, up 37% from $1,441 in the same month last year. May service income was $1,016, April $1,190.

CONVERSION TO COAL: In view of the considerable effort by Government departments to interest Eastern fueloil users in conversion to coal before the heating season, there has been surprisingly little interest shown by the public. In another article in this issue it is shown that ac-

tual conversions have been about ½ of 1%, based upon a wide interview survey; key dealers reporting for "Sales Trends" estimate conversion, on the average, at 68/100 of 1%.

When prices of domestic heating oils went up 2¢ in June throughout District 1, it was believed this might stimulate interest in conversion to coal. Only a third of reporting dealers, however, think that this will have any effect. In fact, 54% of the dealers say that they have heard no complaints whatever about the price raise.

On the other hand oilheating dealers fear that there will not be enough coal to go around if many homeowners convert, so they're in a dilemma as to whether to stick their necks out by making conversions. In 26 oilheating key markets checked on July 1, only 11 appeared to have ample coal supplies; in the other 15, coal was decidedly scarce.

Dealer comments on the combined subject of conversion and oil price rise range from complacency to biting criticism of what they feel is official bungling. Typical are these: Our people want oil, are willing to pay what it costs without complaint . . . If the customers can get a fair supply of oil, 99% will stick regardless of price . . . Our customers want to take their chances on the oil supply, no matter how scarce, rather than convert to coal . . . We are discouraging people from converting to coal, for we believe in our area it will be scarcer than oil . . . People won't believe they can't have oil; many refuse to shift, others can't . . . Some complaint on the price rise, but not vicious, and while this might influence slightly conversion to coal, the public seems to have got its back up on this subject . . . More inquiries on conversion materials, but little actual change . . . If politics could be kept out, we would get oil . . . Again it's "too little and too late"; we cannot understand Government putting dealers out of business just because officials fell down badly on the job, and they're still on the job . . . This is the highest fueloil price in my 18 years experience . . . Heavy oil costs, because of public utility lobbyists, did not increase . . . How can anyone shift to coal, with coal as short as oil . . . Don't think oil price is a factor, but East Coast fueloil is certainly being handled by incompetents; clear stigma of politics; war can be won and oil still delivered, but by competent leaders . . . The coal crowd is exerting Washington pressure to regain tonnage losses to oil, of recent years. These comments on the brighter side: We made 20 June installations under L-79, Amended . . . While priorities and red tape are costly, service business will pay out . . . A strong service and replacement business increase for oil conservation . . . We believe a large bucket-a-day stove connected in parallel would be the answer for hot water heating systems; it wouldn't do the whole job, but would supplement the oil in cold weather.

STOKERS: April shipments of Classes 1 & 2 domestic stokers were 9,850, down 7.9% from a year ago. May shipments were 5,060, off 67.0% from 15,330 a year ago. Five month comparisons are 41,435 this year against 47,891 last, down 13.5%.

Oilburner* and Building Permits

OILBURNERS					DWELLINGS			
June 1942	June 1941	6 MONTHS 1942	6 MONTHS 1941		June 1942	June 1941	6 MONTHS 1942	6 MONTHS 1941
..	..	..	..	Baltimore, Maryland	113	309	953	1938
..	..	..	..	Binghamton, New York	1	12	14	50
..	..	..	..	Bloomfield, N. J.	25	9	86	94
85	217	451	879	Boston, Massachusetts	1	..	84	..
9	63	166	269	Bridgeport, Conn.	..	..	..	..
..	..	..	..	Buffalo, New York	10	17	..	99
..	..	..	..	Des Moines, Iowa	89	83	465	356
110	111	493	507	Detroit, Michigan	589	1120	4681	5896
3	23	48	130	Elizabeth, N. J.	0	10	5	22
4	15	52	109	Freeport, New York	..	..	..	..
..	..	..	..	Greenwich, Conn.	1	25	21	91
..	..	..	..	Hackensack, N. J.	2	16	40	58
5	93	268	375	Hartford, Conn.	..	..	..	..
3	115	371	626	Hudson County, N. J.	..	..	..	..
1	15	48	85	Irvington, N. J.	7	4	38	6
..	..	..	..	Lynn, Massachusetts	0	14	25	73
38	55	171	241	Milwaukee, Wisc.	72	107	355	505
46	67	279	423	Minneapolis, Minn.	28	139	309	629
1	12	38	83	Montclair, N. J.	..	..	..	..
..	..	..	..	Morristown, N. J.	0	2	6	7
3	26	73	152	Mt. Vernon, New York	..	..	..	..
6	90	156	405	Newark, New Jersey	..	..	..	..
9	15	109	150	New Bedford, Mass.	..	..	..	..
3	1	15	12	New Orleans, La.	..	..	..	..
3	11	36	75	New Rochelle, N. Y.	0	9	19	27
27	372	667	1125	Manhattan, Bronx, Rchd.	..	..	..	..
29	76	574	408	Norfolk, Virginia	47	104	791	312
3	2	12	15	Oakland, Calif.	..	..	..	..
40	51	255	320	Omaha, Nebraska	11	94	269	419
0	11	20	44	Orange, New Jersey	0	2	3	9
2	14	32	64	Passaic, New Jersey	..	..	..	..
0	22	42	104	Paterson, N. J.	8	16	22	114
..	..	..	..	Plainfield, N. J.	12	2	37	22
4	21	62	144	Portland, Maine	2	21	20	73
10	216	913	1106	Portland, Oregon	64	188	647	956
3	41	180	363	Providence, R. I.	0	15	39	89
..	..	..	..	Reading, Penna.	0	8	8	26
5	42	64	294	Richmond, Virginia	10	71	202	393
0	45	166	203	Rochester, N. Y.	..	..	..	..
0	34	58	117	Rockville Center, N. Y.	0	23	14	86
..	..	..	..	Salem, Massachusetts	0	7	6	17
47	38	272	215	St. Louis, Missouri	..	..	..	..
28	82	357	525	St. Paul, Minnesota	8	88	167	400
42	59	183	233	Schenectady, N. Y.	..	..	..	..
..	..	..	..	Springfield, Mass.	4	20	247	123
3	15	46	102	Stamford, Conn.	..	..	..	..
0	12	19	46	Syracuse, New York	7	9	67	62
..	..	..	..	Trenton, New Jersey	0	0	1	1
..	..	..	..	Utica, New York	0	2	57	19
47	222	720	1613	Washington, D. C.	..	..	..	..
..	..	..	..	West Orange, N. J.	0	16	17	60
2	19	42	131	White Plains, N. Y.	0	7	3	31
3	44	94	253	Wilmington, Delaware	0	8	13	85
21	85	180	378	Worcester, Mass.	..	..	..	..
645	*2452*	*7732*	*12324*	*Totals*	*1111*	*2577*	*9731*	*13148*
—73.8	..	—37.3	..	*Percent Change*	—57.0	..	—25.9	..

*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, however, they are a useful working index.

Oilburner Installation Permits for New and Old Homes

JUNE 1942				6 MONTHS 1942		
New	Old	% New		New	Old	% New
0	4	0	Freeport,N.Y.	23	31	43
0	1	0	Irvington,N.J.	30	23	57
0	3	0	Mt.Vernon,N.Y.	..	..	..
0	2	0	Passaic,N.J.	4	28	13
2	2	50	Portland,Me.	44	30	60
5	37	12	Schenectady,N.Y.	36	147	20
0	47	0	St.Louis,Mo.	1	226	..
7	96	7		138	485	22

DID YOU EVER CONSIDER BEING A

CHINESE DOCTOR?

醫生

The Chinese doctor's method of being paid to keep his patients in good health is a sound principle, which could very well be applied to the situation facing the oil burner dealers of America.

The flat annual or monthly fee for "preventive" service on oil burners is not new, but if this phase of your business were promoted and extended to making a thorough check up of *all* parts of a heating system, *regardless of type of fuel burned,* the results would be highly profitable—not only in increased efficiencies of heating systems and the saving of vital fuels, but in substantial profits to dealers.

You can develop this steady source of income by telephone solicitation, letters, mailing pieces and house to house canvassing. Now, more than ever before, your customers will be receptive to such a service, which will enable them to keep their present heating system working efficiently and economically for the duration.

Published in the interests of the oil burner industry.

THE TORRINGTON MANUFACTURING COMPANY
TORRINGTON, CONNECTICUT
Manufacturers of AIRotor Blower Wheels and AIRistocrat Quiet Propeller Fan Blades

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fueloil & oil heat

Users Must Save Oil

Prepared Specially for FUELOIL & OIL HEAT

By Consumer Division, Office of Price Administration

Every oilburner service organization has its year's work specified for it in this message from the Consumers Division of the Office of Price Administration. Though the need is urgent, it will require hard selling and harder work to educate customers to save their oil. Start today! The heating season begins in 60 days.

CONSERVATION is necessary to safeguard health and to make sure that at least some rooms in each home get enough heat to make them livable. Fuel oil is essential to the war program and must be conserved. Because of the shortage of oil tankers, we must rely on tank cars to carry fuel oil and available tank car space is inadequate to meet essential demands.

The "how" of conservation is the special responsibility of those who service homeowners and who are equipped to give them the technical help they need. No one is better fitted for this task than the service men who usually tend to breakdowns and tune-ups, the equipment dealers who install the oil heating units, and the oil salesmen who see home owners every day.

The accompanying "Five Steps to Save Oil" should be presented, explained and emphasized to every homeowner who uses fuel oil.

The first step of the five-step plan, reducing indoor temperatures, can be carried far enough in many homes to cut oil consumption about 20% by itself. Not one of these details should be overlooked:

a. Cut the daytime temperatures. 65° is recommended as maximum from morning until about 6 P. M. in homes where daytime occupants are engaged in normal activities. Oil shortages may make it necessary to regard lower than 65° as the standard daytime temperature.

b. Cut off or reduce heat at night. The lower the night time temperature and the longer it is maintained, the more heat is saved. Turning off the burner switch at about 9:30 P. M. and turning it on again upon getting up, is best for many homes, for all but the most severely cold weather. For others, a day-night thermostat may be set at, say 50° from 9:30 P. M. to 7 A. M. Heating experts should urge burner users to stretch out the period of no-heat or low-heat, so that oil is available for essential heat.

c. For the many mildly cold days when there is a question about whether or not heat is needed, set the room thermostat at 55° or 60° or, better still, keep the main switch of the oil burner turned off. Do not turn on heat until there really is need for it.

This year heat should be turned on at a later date than has been customary. There are many September and October days when heat is desirable, during normal times, to ward off an hour or two of chill and slight discomfort. However, because of the fuel shortage, the use of fuel oil on such days should be ruled out now; saving oil in this way will increase the amount available for the dead of winter.

Following this principle also dictates turning off the oil burner for a stretch of warm weather, if this comes after the heating season has started.

The same principle can be applied at the end of the heating season. That is, heat may be turned off earlier than usual. Also, if a mild spell of weather comes during March, for example, the oil burner should be turned off during that period.

Heating experts can explain to home owners that lowering the setting of the room thermostat one degree saves about 3% of the oil; 65° for the winter instead of 70° cuts oil consumption about 15%. In addition, reduced night time temperatures, used for the first time, can be expected to make 10% to 15% difference in the oil used.

To take step two—closing up and turning off the heat in rooms not needed—

OPA Recommends to Homeowners
FIVE STEPS TO SAVE OIL

1. **Maintain reduced indoor temperatures; turn on no more heat than is absolutely necessary.**
2. **Close off any rooms not really needed and turn off the heat in them.**
3. **Reduce the heat losses of the rooms which must be heated.**
4. **Keep the heating plant and oil burner equipment in top-notch condition for efficient operation. Eliminate defects which waste oil.**
5. **Conserve hot water. Do not draw more than is actually needed.**

many home owners need help from heating experts. Hot water heating systems present problems; turned off, the radiators may freeze. The shut-off valves on steam radiators may be leaky and need repairs. Certain boiler-radiator systems will be more satisfactory and efficient, when operated to heat just a few rooms, if the piping to the unheated sections of the homes is disconnected and drained. Similarly with certain warm-air and winter air-conditioning plants, it may be best to interrupt the heat to certain rooms by means more positive than simply closing duct dampers and register dampers. Where these do not close dead-tight and where long basement ducts heat needlessly when they are turned off, plugging the ducts or even making emergency alterations to them may be in order.

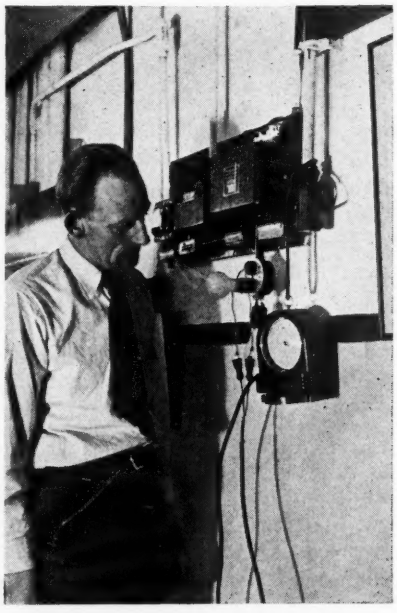
Home owners should be taught that, where feasible, bedrooms should not be heated, and the doors to unheated rooms must be closed tight to save most oil. They deserve the same respect as outside doors, or they will permit cold air to enter the heated rooms or warm air to escape from them.

Reducing losses from heated rooms (step three) calls for common sense and engineering skill which most burner experts can display. Loose, rattling windows constitute a heat-losing defect of many homes, and well-fitted storm windows are considered by many a "must." Poorly fitted outside doors fall in the same class. Commonly used outside doors which need storm doors or outside vestibules are a menace to low oil consumption. The same goes for leaks and crevices of all kinds, which permit cold outside air to enter the house, and warm air to escape.

Rock wool or other similar non-critical building insulation certainly should be considered for "cold ceilings" which are easy to insulate, for in these times an oil-heated home which lacks ceiling insulation can be regarded as an oil waster. And as insulation can cut the flow of heat through outside walls by 60% to 80%, it should be considered also for these walls.

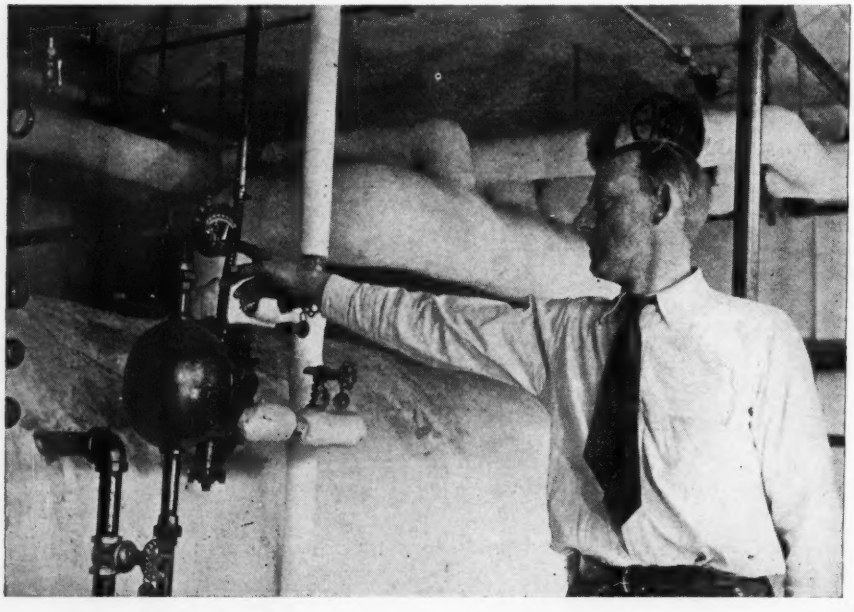
Point four, which covers condition of the heating plant and oil burner, must be stressed to owners of burners which, because of defects that can be remedied easily, give CO_2 readings under 5% and stack temperature reading over 600°. An oil burner out of adjustment can waste half the oil used.

The general point of conserving hot water, covered in step five, has teeth when a fuel conservation expert applies it properly to a summer-winter hot water installation. Summer oil consumption of typical tank-equipped indirect water heater layouts can be cut by more than half. Instead of permitting boiler temperatures up to 140° or 160° at all times, even when the hot water storage tank is properly heated, instruct the burner owner to turn off the oil burner main switch. He turns it on mornings for half an hour to an hour, and evenings for the same length of time. With an indirect water heater of adequate size and a hot water storage tank insulated and of the proper size, this usually heats enough water for the family's needs, but cuts the summer oil consumption 50% to 65%. For baths and washdays, a home owner may have to be instructed to leave the burner operating for as many hours as proves necessary.



On-Off recorder should show burner operating at least 20 minutes after each start. (Here two 110-volt bulbs in series serve as a voltage-splitter on 220-volt burner panel.)

Special control systems will save oil. This aquastat "holds back" the burner until piping at this point drops to 140°, assuring a longer run.



Poorly laid out systems will, of course, not operate properly with this program, nor will systems which lack heater or tank capacity, or which have plugged piping or plugged heater coils. The rectangular steam boiler which needs a manifold but hasn't one will not operate properly.

Though the owner of a boiler equipped with a tankless water heater will not get hot water when his heating boiler is cold, he also may be instructed to turn off the burner main switch during the summer to save oil. To keep it off from bedtime until early morning has proved practical in some instances. In others, the switch also is off most of the day, and only during certain hours, when it is kept on, is there hot water on tap.

All told, conserving hot water means conserving fuel oil, especially during the summer months when an expert buckles down to the problem of arranging a program to save oil by keeping the burner idle as many hours a day as will keep a cooperative burner owner content.

The accompanying service details related to saving oil ("Ten Steps to Save Oil") are for the guidance of dealers and service men, but may also show burner owners what is needed, in adjustments, repairs, and maintenance, to arrive at low oil consumption.

To accomplish step one—the proper size flame—the trained, capable service man uses some method other than guessing. Excepting steam plants, most heating systems present little chance of oil being wasted because of too small a flame. Undersize furnaces frequently show greatest fuel economy when fired at such low rates that the burners are idle a sum total of only a few hours, perhaps four or five, on the coldest days of the winter; and this is equally true of hot water boilers connected to gravity or forced circulation systems. A reduction in the load on an undersize furnace or boiler, the result of insulating the house or cutting off the heat to rooms previously heated, calls for a reduction in the firing rate.

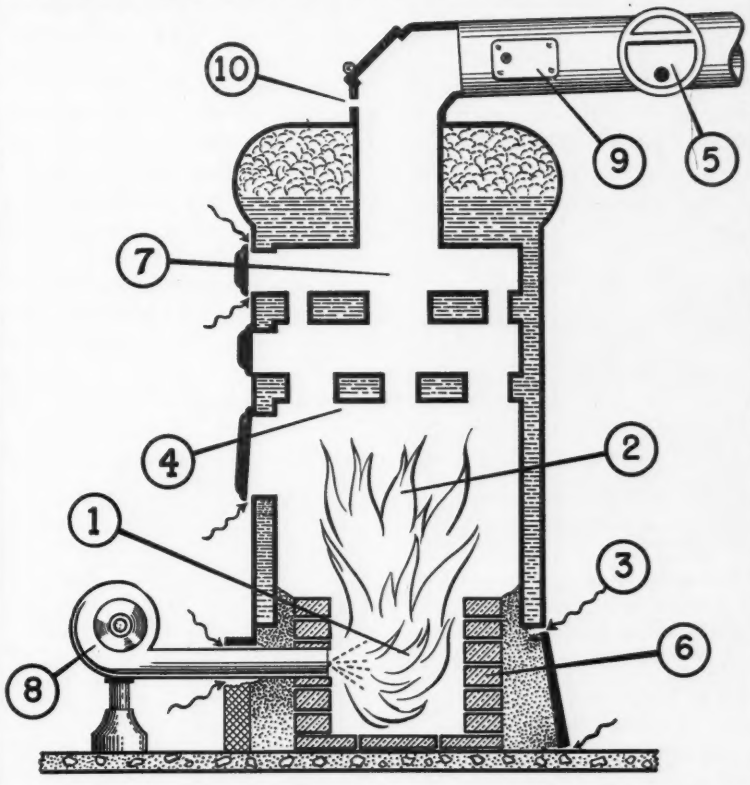
"Flame Quality," the second point in the service plan, is satisfactory if the burner shows at least 10% CO_2 with no perceptible chimney smoke and there is no trouble due to soot deposits on the heating surfaces. Amateurish attempts to arrive at low oil consumption without the help of combustion testing instruments must be ruled out. Experts use CO_2 testers, draft gauges, and stack thermometers. Men who lack these instruments and the ability to use them must be classed as tinkerers. The importance of proper instruments should be stressed to all burner owners by reputable equipment dealers, service men, and oil company employees concerned with oil heating.

Air leaks—Step Three—formerly were regarded as necessary evils because to locate and seal them required removing asbestos covering, or a metal jacket, from the boiler or furnace. The oil shortage changed all that. Now dealers and service men determined to minimize oil consumption regard fuel-wasting air leaks as in the same class with flat tires on an automobile. They must be fixed. "Air leaks

Consumer Division
Office of Price Administration

specifies

TEN STEPS TO SAVE OIL



1. **Proper Size Fire**—Avoid wasteful, oversize flames! Use the proper firing rate.
2. **Flame Quality**—Tune and adjust the burner to get a flame of maximum combustion quality.
3. **Air Leaks**—Locate and seal all air leaks.
4. **Clean Heating Surfaces**—Remove scale and soot from the direct and indirect heating surfaces.
5. **Proper Draft**—Adjust for the "just enough" draft which gives maximum efficiency.
6. **Good Firebox**—Keep good fireboxes in good condition by pointing up crumbling brick, crevices, and seams. Rebuild inefficient fireboxes.
7. **Flue Baffles**—Where furnace or boiler design permits, apply carefully engineered flue baffles to cut oil consumption 10 to 40 per cent.
8. **Motor-Driven Parts**—Keep the oil burner itself efficient and smooth-running by giving proper attention to the motor and the motor-driven parts.
9. **Controls**—Check the controls for safe operation. Where necessary, adjust the controls to arrive at the proper "on-off" cycling that is necessary for maximum efficiency.
10. **Stack Loss Check-Up**—Use combustion testing instruments to measure the firebox and smokepipe draft, the stack temperature, and the CO_2 content of the flue gases. Aim at 10 per cent CO_2 minimum and 600° stack temperature maximum.

hard to get at" is no longer a valid excuse for the service man to present to his boss in connection with 5% CO_2 readings.

Point 4, "Clean Heating Surfaces," calls for work by the service man or good instructions for the owner of the equipment. Generally a thoroughly good job of cleaning is insured if a professional does the work, armed with a special vacuum cleaner, wire flue brushes, and zeal for fuel economy. Where cleaning three or four times a year is indicated for a low-income home, however, instructing the owner on how to do the job himself may be in order. He may need pointers on how to seal poorly-fitting flue doors with furnace cement when he has finished the cleaning.

Proper Draft

"Proper Draft" has been defined as firebox draft so low that cutting it slightly will lead to the troubles of insufficient draft, i.e., soot, smoke, or odors in the basement, especially on cold starts. A thorough check-up on possibilities of saving oil by controlling the draft closely leaves many boilers and furnaces with a tell-tale mark. This is a hole drilled in the firing door or the firing door frame, which proves that the service man was diligent enough to read the firebox draft.

Regarding "Good Firebox," item 6, inspections of burners now in use indicate that some oil burner dealers still do not know how to design and build efficient combustion chambers. In some cities, the majority of the fireboxes fired by conversion burners are far too large. Many have side walls too low. The result is that the refractory material does not reach red-heat even when the burners operate for an hour, and the oil consumption may be upped 15% to 50% because of improper combustion. Special refractory materials during recent years have done much to improve the situation. Redesign and rebuilding are in order for thousands of wasteful fireboxes, and also for those which will be fired at considerably reduced gph rates.

Item 7 covers flue baffles. The installation of well-designed baffles has, by itself, cut the fuel consumption of some jobs by as much as 40%. The slipshod practice of inserting a few split firebricks in the flue passages to "baffle" a boiler should be condemned. Flue baffling is highly specialized work, best performed by experts.

The oil burner owner who wants to avert breakdowns owes the motor and the motor-driven parts of his burner the proper attention, as stated in item 8.

Controls, item 9, should be cared for properly to minimize chances that new controls and repair parts will be needed. In addition, the control adjustments have a bearing on fuel consumption. Extremely short "on" periods cause most oil burners to waste oil. Some experts declare that room thermostats should be adjusted so that the length of the typical "on" period is not less than 20 minutes. The proper attention to the high limit controls of certain heating plants also can cut the oil bills; for example, lowering the settings of warm air furnace bonnet controls and hot water system high limit controls may save fuel. Setting the high limit control of hot water system at 125° for September and October may cut the oil consumption by 5% to 15%.

Point 10 stresses the stack loss check-

Commercial burners must be tuned.

up. Whereas 9%, or even 8% CO_2 was once a "get-by" reading for many experts, now the call for maximum economy raises the CO_2 par value. If an installation does not show 10%, its combustion quality may be denounced as too poor for fuel economy. The par value of 600° stack temperature is firmly fixed in the minds of most oil burner dealers, thanks largely to the influence of FHA minimum requirements. To aim for lower than this is none-the-less advisable. Many installations operate at extremely high efficiencies, and are satisfactory in every other respect, while yielding stack temperatures as low as 325°. To reduce stack temperatures:

a. Cut down the size of flames which up to now have been needlessly large.

b. Reduce the heating load by cutting off the heat to rooms not needed, and firing more lightly to carry the reduced load properly.

c. Eliminate poor combustion caused by burner defects which raise the stack temperature and lower the CO_2.

d. Rebuild poorly designed fireboxes and oversize fireboxes.

e. Apply skillfully engineered flue baffles to boilers and furnaces susceptible to this.

f. Seal internal gas leaks which permit the products of combustion to take short-cuts to the smoke outlet, instead of traveling the length of the flue passages.

g. Where necessary, make sure that the heating surfaces of the boiler or furnaces are cleaned thoroughly three or four times a year.

On every installation there should be posted a combustion test report, dated and signed by the man who made the test, and giving these readings: stack temperature, CO_2 firebox draft, and smokepipe draft. Burner owners should be taught by reputable service organizations and fuel company men that they are entitled to such a report.

Oil burner owners need all the help they can get from these specialists who are really capable of making five gallons of oil do the trick where ten gallons were used before. To save fuel oil in homes where it is not possible to convert to coal, is a patriotic duty of every expert in the oil heating industry.

Reprints

of this entire article as a four-page folder, or a single sheet showing only the illustrated "Ten Steps to Save Oil" box on page 13, are available. Prices, depending on quantity ordered, will be furnished on request. Your customers must save oil. This article tells how to do it.

Trucks to Share

Transportation Waste in Wartime is Serious

By
Robert Gray

In exploring the possibilities of reducing transportation waste through cooperative plans, or delivery pooling, it is recognized that before much progress is possible at least one Government regulation must be done away with—the ruling that prohibits larger than 150 gallon drops in a 275 gallon tank.

This ruling, made early in the Spring to handle a temporary situation, is recognized by most Government men to be impractical, so it will probably be erased well before the heating season starts.

LOOKING about the premises of a Long Island bulk plant on a cool mid-July morning of a day that was going to be hot, wars and rumors of wars were far away. Small waves from the Sound nuzzled the protective piling of the pier, while a stone's throw out in the bay lazy sails on a Snipe went looking for a fresher breeze.

True, there was neither tanker nor barge unloading at the pier, although the storage tanks could have held several cargoes. Also true, a B-25 bomber with its pencil-thin fuselage and its bomb bay loaded swung out over the Sound on the first leg of a deep water patrol. And yet nothing suggested combat, for docks often stand unused, and, because of Long Island's many airports, planes overhead have attracted little notice in years.

The huge door of the station's garage yawned, invited more than casual glance toward the dim interior, where stood the station's six tank trucks, each in its appointed place and polished like a fire engine. If ever was an atmosphere of business as usual, of life as usual, that whole place relaxed in its assurance.

The plant had not been erected in that spot with a view to serving the village of 6,000 whose shore line it shared, other than incidentally. It was built there to get the two mill per gallon advantage that tidewater plants have over inland competitors. Actually, it sold less fueloil in its home village than it did in Babylon, 25 miles away on the south shore of the island, where it competed with other tidewater terminals. And although it is the only plant in its village, six or seven competitors dart in and serve most of the 700 local fueloil users . . . supply them because they had sold to them before the local plant was built, and there has been no good reason to change.

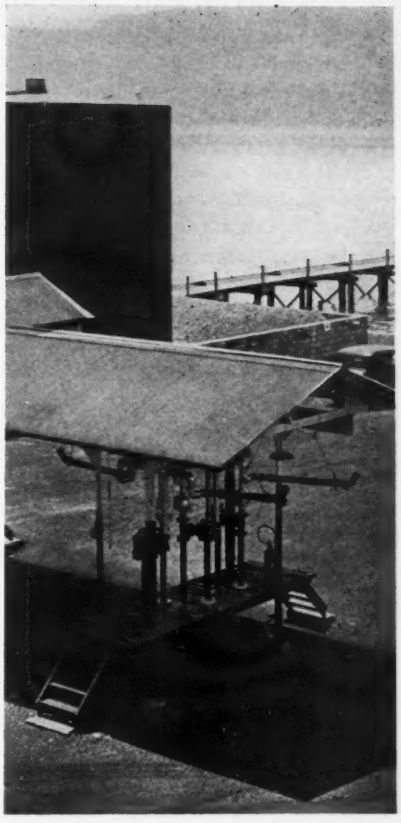
Momentarily stirred by the implications of this distribution waste, the visitor questioned the proprietor, "If you had no competition in town, you could probably handle all the business, couldn't you?" "Yes," he laughed, "and with one truck."

The visitor understood that there was nothing novel in the picture just uncovered; it occurred that his own home was being supplied from a bulk plant eleven miles distant, while just two miles from his house were four good plants.

Perhaps it's borrowing trouble to be concerned about distribution waste at this stage of our war; few appear to be concerned. Yet informed men agree, when asked, that probably half of all fueloil trucks, and truck mileage, could be done away with, and yet without reducing necessary service to the oil user, if a cooperative streamlined truck pooling facility were to be planned and adopted. Then it should be done.

This is not a peace-time proposal; this is war. In peace-time we couldn't long tolerate the restriction on initiative that cooperative distribution brings. Part of America's well-being has come because of wasteful distribution . . . probably as much as has come through efficient production.

Within the period of a single life-time the balance between the percentage of men employed in production and distribution has reversed itself; in 1870 seven men produced goods to each three that sold and serviced them; today 30% make them, 70% sell and service them. As keen-eyed factory engineers cut here and cut there, until eventually they were able to make twice as good a car for half the money, the men their efficiency displaced went into some form of distribution.



Without digressing further into such thoughts, it is clear that waste did, and may again after the war, help uphold the American standard of living. Thus, if a Port Washington fueloil distributor wore out his truck driving past ten competitors to make a 200 gallon drop, who cared, for men in New Brunswick or Dearborn would make him another truck, and with the money received buy an oilburner, for which another truck must haul oil, etc. If ever we in peace-time eliminate waste, half of us will be on the dole.

But trucking waste in wartime is a horse of another color. We are waging the biggest war in our history; certainly we expect to win it, but before we do we've got to stop backing up. This is a war of motion, of mechanical motion, where trucks and tires and gasoline win battles. Tank trucks haul the energy for wars of motion; they also bring water to desert fighters.

Assume, for the moment, that no truck pooling is to be done. What is the alternative outlook? In the light of known

conditions in Russia, Egypt, China and Alaska today, few can be so glibly optimistic as to predict a short war. In a long war delivery waste will eventually cease by process of natural elimination . . . survival of the strongest. If we go on wasting trucks at today's rate, and no fresh crop replacing them, it is sound to predict that nearly half of them will be out of operation for one reason or another within three years, and along with them most of the smaller fueloil distributors. Then there will be no question of whose oil to buy, but rather, who's got a truck.

In that three years' spree, eighteen thousand fueloil trucks will have been needlessly eliminated . . . in peace-time nothing to worry about; in wartime inexcusable.

The public is just beginning to rouse itself to the implications of waste. With sugar, gasoline, cars and tires rationed, and with scrap collection drives in progress for rubber, metals and fats, interest in waste elimination and salvage mounts. With other restrictions promised soon, it's not hard to forsee that by next year thinking people will be waste-conscious to an analytical degree, particularly if the war is still going badly and casualty lists up. Then delivery pooling may be forced, but voluntary regulating plans made early are traditionally more favorable than forced programs.

Many other industries waste more transportation than fueloil companies, because they are bigger; none has gone far into cooperation. However, the fueloil industry, or perhaps the integrated petroleum industry, has reason to take the lead and show the way. It has a simpler pooling job than companies with bread trucks or milk trucks or other route operations where the driver is also a salesman. Again, fueloil men get extra benefits as, for example, the fact that every gallon of gasoline saved by eliminating cross-hauling means that a gallon of fueloil can be brought from the West in precious tank car space.

Finally, if we just must wear out those 18,000 trucks that could be saved, why not do it in more productive service, such as over-the-road transport of fueloil from the head of water navigation at Pittsburgh to Philadelphia and Baltimore . . . or perhaps from Salem, Ill., head of the new 24" pipe line, to hundreds of towns in the Central States, thus releasing tank cars for the long haul East.

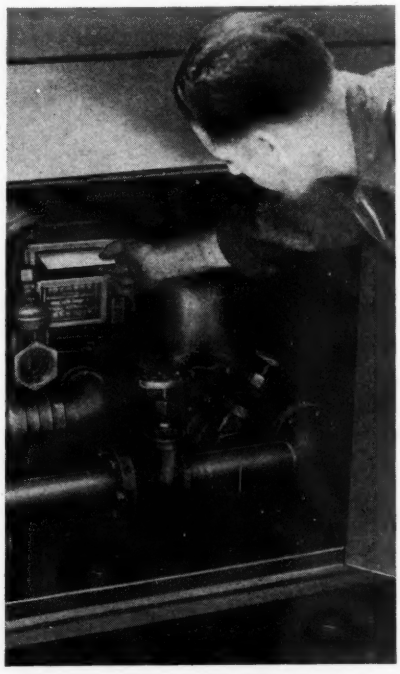
In discussing problems of cooperative fueloil delivery with large and small distributors, there is little disagreement on the fact that it must come sooner or later. Some suggest that the administration of such a plan will be complex, as are all projects that upset normal activity on a broad scale. The administrator and his regional assistants would have to be realists, men who wouldn't hesitate to cut across established lines and reduce the job to its simplest form: moving oil from one point to another with greatest dispatch, and letting accountants work out the cost distribution and compensation.

There is no reason why a fixed formula would have to apply in all areas; local conditions vary too much. The simplest plan would select in each district one large efficient operator, have him deliver for all the others on a fixed price per gallon. The objection to this is that too many want to be "it"; they see a profit in the hauling.

To place all participants on an equal footing, a separate delivery corporation might be set up, jointly owned and capitalized for just enough to carry overhead at the start. The corporation would lease all bulk plants and trucks, would use any or all of them as needed. Idle bulk storage would bring to its owners small income for interest and taxes; surplus tank trucks would be either stored or sold. Dispatching of all trucks would be done from central points where all customer degree-day records would be kept.

There would be no necessity for individual companies to lose their identities; they would still do the selling, billing and collecting, except on c.o.d. accounts, where drivers could collect. The trucks delivering the oil would be unbranded, but the drivers in their contacts with homeowners would represent whatever individual firm had sold the customer.

All of the delivery trucks should have printing meters and carry meter tickets printed with the name of each participating oil company, to be used when supplying their customers.



To cut delivery cost to the bone, customers not on c.o.d. should be on a keep-filled basis, so that trucks could deliver whenever in the block, for it would probably pay to make drops as small as 100 gallons when the truck was passing. Where possible fuel tanks should be fitted with ventalarm whistle signals, so deliveries could be made day or night without disturbing occupants of the house, or when no one was at home.

Because each truck would serve the customers of several companies on a single trip, pooling of stocks would be necessary. Customers would soon realize this, so it would be advisable to write each a letter of explanation at the start outlining the temporary nature of the arrangement and promising that the product would always be at least up to standard.

Too greedy competitors might try to take an advantage by cutting price below the OPA ceiling and telling buyers that, since it is all the same stock, it's foolish to pay more. If this practice grew to damaging proportions, the other companies could meet the cut and in all probability prices would quickly bounce back into line.

It is not possible to shut out undesirable firms from the pool. The Department of Justice has stated as a principle that any pooling arrangement must offer participation to all firms in a particular area being served. It is not required that they all come in, but simply that they be given a chance, otherwise the activity is held to be in restraint of trade.

It is reported that some days ago in Philadelphia a delivery pooling arrangement between laundries was stymied by this legal angle. The 89 companies that signed up refused to take in six others who were believed to do sub-standard work and who sold at low prices. The six wanted to get in, knowing it would enhance their stature with the public to be associated with the best-name companies, while at the same time getting lower delivery costs. The Justice Department took the position that with the six excluded the others would be in restraint of trade.

Price Cutting Improbable

There would be less danger of price-cutting operators wrecking a pooled fuel-oil program, for the merchandise they sell is scarce. If a price cutter forced other pool members to meet him, he would only be cutting his own throat. This was not true in the Philadelphia laundry case, for there's no serious shortage of commercial washers and soap, nothing to prevent their over-all business expanding, now that more people have spending money.

There are quite a number of other hurdles to get over, or to detour around, in studying delivery cooperation. A number have asked what to do about the "peddler," or one-truck operator with his office in his hat. In general; don't worry about him. Offer him a chance to come in, and if he doesn't it's probably better, for most drivers wouldn't like to take over his bucket delivery of range oil up four flights in cold-water flats.

What about small communities with a handful of fueloil users and only two or three firms selling fueloil? Forget those at the start, and after pooling in larger places has come into general practice, the small places will see the benefits and work out their own plan, and the Justice Department probably won't worry about them. Of first importance are the 46 key oilheating markets, where 40% of all fueloil is sold. Next are 445 cities and towns served by five or more dealers and doing another 40% of the country's business. The remaining 20% of fueloil is delivered in 3,321 communities having each one or more dealers.

Another obvious question is about companies that handle gasoline as well as fueloil, using the same trucks. This includes most of the major oil companies, and although they deliver at retail only about 20% of the country's home heating oil, yet they are a wholesale factor in almost every market. There is no good reason why the district transportation pool could not handle all petroleum products. There is just as much transportation waste today through overlapping and cross-hauling in delivering gasoline to service stations and to farms, as there is in fueloil, perhaps more.

What would the drivers' unions do if pooled delivery starts? They are in a nice spot today with their guarantees of 173 hours pay a month, year round, whether or not there's work to be done. Half of them might not be needed in a cooperative delivery program. But whatever their attitude, the problem is decidedly of a temporary nature. We are assured that we face an acute manpower shortage, that by October it will be apparent everywhere. Truck drivers are Americans; they'd soon get busy, help win the war.

What would be done with the pool member who let his stocks run out? There will be some of those. While physically, all stocks have been poured in together, yet each company owns just so many gallons of the supply on hand. One distributor might own half, yet there would be no obligation for him to supply the unfortunate member who ran out. On the other hand, the large distributor could be "neighborly" and make a loan of oil for a few days if the unfortunate member had in the past shown inclination to be a worthy neighbor.

One more mentioned drawback to pooled delivery is loss of advertising value of branded trucks on the streets. That could be offset by spending part of the delivery savings for larger advertising space in the telephone book or in local newspapers.

What can reasonably be expected in delivery cost savings? Probably half of present trucking costs could be saved for the industry as a whole, less than that for today's most efficient operators. An accompanying table shows several measurements of fueloil delivery efficiency, figures that appeared in articles in FUELOIL JOURNAL in the past two years.

The first column is the average of several hundred distributors in the New England and Middle Atlantic States who supplied the data on a questionnaire. The second column of figures is from Sherwood Bros., Baltimore, and the third column is from Dome Oil Co., Washington. The Sherwood figures are two years old; their present operation is further improved, with gallons-per-truck-per-season above 600,000.

Both Dome and Sherwood have nearly all of their customers on degree-day, keep-filled, ventalarm-controlled operation. To serve 7,500 customers, Sherwood employs one tidewater bulk plant and five neighborhood plants, from which the trucks operate.

This is conceivably as economical a delivery set-up as can be found under present conditions, yet Sherwood trucks continue to cross their competitors' tracks all day long, for their customers are just about one-sixth of the total domestic fuel-

Measurements of retail fueloil distribution

	Average	*Sherwood*	*Dome*
Annual turnover of bulk plant capacity	10.9 times	....	43.0 times
Number of home heating customers	590	7,450	....
Deliveries per year per customer	10.4	....	10.1
Truck miles per customer	60.3	....	28.5
Average truck tank capacity	1,324	....	1,125
Number of customers per truck	152	298	344
Gallons per truck per season	251,450	540,000	615,500
Truck miles per average drop	5.8	2.1	2.9
Gallons delivered per truck-mile	40	96	64

oil users in Baltimore. Sherwood's retail trucking cost is reported to be less than one-third cent per gallon, against the industry average of .65¢ to .75¢.

One Sherwood truck on a cold winter day made 39 drops, averaging 211 gallons each, total 8,229 gallons, in 11 hours. It wasn't a stunt; it was a routine trip at peak season. If cooperative trucking could approach this efficiency, which possibility is a pipe-dream, we would need only one-eighth of the trucks now in use.

Pooling of storage will bring cost savings, so will joint degree-day operation and dispatching. Operating men visualize an over-all saving of up to a cent a gallon, probably a half cent average.

A half cent a gallon changed from expense to profit would move a lot of operating statements into the black column.

But getting away from cash benefits and back to "Help Win The War," perhaps Uncle Sam needs some of the trucks that can be released . . . certainly some of Uncle Sam's fighters would like to see more of them. When larger numbers of our men get out to Egypt and learn to do with the pint-a-day water ration that British soldiers have for drinking, shaving, bathing and everything else, and temperatures 120 in the shade . . . the boys will probably be seeing mirages on a sizzling plateau, mirages that look like tank trucks, one of them a 3,500 gallon truck that could bring an extra quart of bath water to each man in a whole division.

Eastern Oil Price Down

Just at presstime it was announced that domestic heating oil prices in District 1 are reduced 1.1c, effective August 5, a result of RFC agreeing to absorb a part of increased cost of rail transportation.

Rationing Plan Embraces Conservation and Conversion

OIL BURNER INSTITUTE directors have adopted in principle a plan for oil distribution that will allocate available supplies on the basis of calculated need rather than on past consumption. If oil rationing becomes necessary next winter—and there is increasing evidence that it is being seriously considered—the industry wants to avoid penalizing efficient oil users to supply those with leaky houses and inefficient burners. If the supply of oil is to be short, it should be used by those who can use it best.

The plan endorsed by OBI already has been submitted and is under consideration by government officials. It assumed that the proper amount of oil that should be burned for any given free-standing house can be calculated by formula.

Robert K. Thulman, mechanical engineer for the Federal Housing Administration, working in cooperation with Frank Faust, chairman of OBI's Engineering Committee, and others, has determined that the fuel required equals 20 times the living area of the house in square feet times the degree-days for the section, divided by the efficiency of the heating plant and house times the heating value of the oil. Assuming the overall efficiency at 70% and the oil at 140,000 Btu, then the fuel required becomes: square feet of living area times degree-days, divided by 4,900. This assumes a properly adjusted burner and a moderate amount of ceiling insulation in the house.

"There are many ways fuel consumption can be reduced," says Mr. Thulman. In order to illustrate the effect of poor adjustment, consider a house with an area of 1,500 sq. ft. located in Philadelphia (5,000 degree-days). The formula shows the fuel consumption to be 1,500 x 4,800 divided by 4,900, or 1,470 gals. Assume the burner is poorly adjusted; at 5% CO_2 and an 800° stack the overall efficiency is 46%. The consumption then is 70 divided by 46 times 1,470, or 2,235 gals. It is possible that a draft regulator, sealing air leaks and proper burner adjustment will bring fuel consumption within striking distance of the proper amount of fuel.

"Keeping temperatures at proper levels, installation of storm windows, insulation and various other measures will help to keep fuel consumption down."

A rationing system, when adopted, probably will be aimed at reducing total oil consumption by some fixed percentage. OBI is attempting now to find the number of gallons per square foot of living space that typical installations require in various areas, so that proper factors can be suggested to reduce consumption by any required percentage.

Quick surveys of about 60 homes of engineers and personnel of oilburner manufacturers showed an average consumption of 1,475 gals. Because of the interest of these people in the best burner operation, it is possible that this figure is lower than the average for all installations, but applying the formula: Area x Degree-days, divided by 5,000, to these homes showed a fuel saving of 8%. Dividing by 6,000 instead of 5,000, would have saved 25% of the fuel.

Mr. Thulman suggests three possible measures of fuel to be allowed an individual installation, the lowest being the rationed amount:

1. One six thousandth of the product of the occupied space used for living purposes times normal degree-days, or
2. Ninety percent of the oil used during a normal winter (in order to prevent rationing an amount greater than experience shows is necessary), or
3. An amount equal to one-eighth of the degree-days times the number of persons living in the house, *whichever is the smallest.*

Then, a house of 2,000 sq. ft. in a 5,000 degree-day area, housing five people and burning 2,100 gals. in a normal season, would be allowed by:

Formula 1	1,667 gals.
Formula 2	1,890 gals.
Formula 3	3,100 gals.

The allowable oil for this installation then would be 1,667 gals. for a normal season and the owner would be faced with the necessity of finding ways of saving 433 gals. by improvements to his house or heating plant.

An owner of a 5,000 sq. ft. house in a 4,000 degree-day area, housing three people, and having a normal fuel consumption of 3,800 gals. would be allowed only 1,500 gals. by Formula 3. This man must either convert to coal, or find ways, possibly by closing up a part of the big house, to reduce his fuel consumption to 40% or normal.

Neither these suggestions, nor any others have yet been adopted, but it appears increasingly likely that some plan of rationing will be put in effect.

Increasing Pressure to Force Conversion Gets No Interest

ACTION to build up stocks of heating oils and prevent hoarding was announced as an amedment to L-56, dated July 29, prohibiting the delivery of oil for space or central heating and cooling between August 3 and September 15. Oil for water heating may be delivered up to 50% of the quantity used in the same month a year ago. The order applies to the coastal area of the 17 eastern states known as Area 1.

Industry leaders look upon this new amendment as a part of the whole "scare campaign" to force the conversion of 300,000 domestic oilfired heating plants to coal. Informed estimates place present conversion at not more than 15,000 burners; a figure that many authorities claim is unreasonably high. If this figure is correct, there still are 1,560,000 domestic burners in the eastern states.

Pressure to force the conversion of oilfired plants has been in evidence in various quarters recently. The keynote of the present conversion campaign was expressed by Walter L. Fleisher, president of the American Society of Heating and Ventilating Engineers when he told a conference of daily and trade press representatives on July 21, that it is necessary to "scare hell out of the oilburning public." To implement the thought, Mr. Fleisher told the press that 25% of the domestic heating oil demand would have to be saved by conversion, since only 60% of the normal supply of heating oil would be available next winter. Mr. Fleisher did not attempt to support his figures with any proof, but issued them as authoritative in spite of some evidence that they were unduly pessimistic. Press service wires took these "authoritative" estimates to all parts of the affected territory.

In view of the present failure of the conversion campaign, and the real need for conservation of fuel, the Atlantic Coast Oil Associations Conference adopted a realistic resolution on July 21, and sent it to proper government officials. It said:

"1. Based upon survey reports less than half of one percent of residential consumers of light fuel oils have converted to coal. This is in spite of a well developed campaign on the part of government officials in Washington who have appealed on the radio and who have made numerous newspaper releases on the subject. Further, oil companies have addressed letters directly to consumers urging their conversion.

"2. From the reaction of consumers we know that the refusal to convert is based upon an economic reason. No consumer having available economical heat in his home will deliberately spend money to depreciate that investment, especially when the sum of money required in material and labor runs from $35 to $150 per burner.

"3. The same consumer would, however, spend such sums of money to appreciate the value of his property through additions of storm windows, insulation or mechanical work that would make his oil burning unit more efficient. This expenditure could be amortized and would not be a complete loss as in the previous case.

"4. The Conference is made up of marketers and they believe that the sales position is indefensible that attempts to sell conversion and conservation at one and the same time.

"5. It is our considered opinion that if, after the long period of pressure brought upon the consumer for conversion, no practical results have been obtained, that immediate attention should be given exclusively to a campaign of conservation and that unless this is done the savings that would result from conservation would be jeopardized. We are, therefore, resolved that it is our firm belief that all government agencies should discontinue further attempts at conversion and concentrate immediately upon the very definite savings that are possible in conservation."

Obviously, there is no foundation for optimistic statements that there is "plenty of oil" available along the East Coast. Neither is the situation so black as interested competitors would like the public to believe. Minimum essential demand—which anticipates a 30% cut in fueloil and a 60% cut in gasoline—is estimated at 1,137,000 barrels a day for the third quarter this year; 1,372,000 bbls. in the last quarter; and 1,460,000 bbls. in the first quarter of 1943. This represents an average minimum daily essential demand for the period of 1,323,000 barrels. Present non-tanker supply for the nine months averages more than 1,245,600 barrels a day, according to Petroleum Industry War Council. In addition to this non-tanker supply, J. R. Parten, director of transportation in OPC, anticipates a tanker movement of 200,000 barrels a day. Some oil now is moving in tankers, but how much is not known.

It must be kept in mind that the minimum demand does not allow the full heating oil supply. This 30% cut must be taken up either by conversions (which are not being made) or by conservation through improvements to users' homes and heating plants. Money for conversion and insulation was facilitated on July 27 by action of the Federal Reserve Board which liberalized credit restrictions. Insulation and conversions now can be sold with no down payment, and with monthly payments spread over any desirable time. This removes the one-third down, balance in twelve months, restrictions that have been in force.

Oilburner dealers have met with stiff resistance from users when they have attempted to sell conversions. Apparently the reasons are well summed up in the Atlantic Coast Conference resolution above; people will not spend money to depreciate the value of their property. Other

War on Waste

A week of "War on Fuel Waste" has been announced for August 17 to 22 by the American Society of Heating and Ventilating Engineers. The Society has asked the governors of 48 states to proclaim the week, and promote it as a means of cutting the fuel demand for heating next winter.

Associations of heating men have been asked to cooperate in promoting the week, and chapters of ASHVE in 30 cities will lend their help. Dealers are urged to drive for conservation service during the week to get all possible commitments for heating plant repairs, cleaning and tuning to best efficiency.

dealers have been unable to get assurances from local coal dealers that converted customers can be supplied with Anthracite next winter. Deliveries have fallen far behind orders already. One New York coal dealer was delivering his April 28 orders on July 24, and though all dealers are not that far behind, they are worried about their winter supplies.

Official concern over the coal supply was voiced by Coordinator Ickes when he designated the Pacific Northwest, the Mid-West and New England as "danger spots." Coal transportation now available is 400 locomotives and 30,000 cars below expectations. Mr. Ickes pointed out that Canada needs 20,000,000 tons of U. S. coal, but has been able to get commitments for only about half of it. Acting Director Howard A. Gray for solid fuels warned on July 16 that coal production, both anthracite and bituminous, was below the level estimated necessary to build up reserve stocks for next winter. In spite of the coal industry's inability to keep up with present demand, supposedly responsible officials still urge conversion from oil to coal.

Mechanical equipment for conversions is another problem that has been investigated. In New York, Mayor LaGuardia ordered a survey that uncovered 21,000 sets of grates in a city with 210,000 oil burners of all types. There were 13,942 sets of grates for one- and two-family houses, against 167,000 domestic burners.

Mayor Tobin of Boston apparently was satisfied with the assurance of the WPB that priority restrictions on grates have been removed, and a report from Sears Roebuck that they have plenty of grates.

Fueloil stocks have not built up as was expected when the price was raised to pay for additional cost of transportation. Oil dealers have not been anxious to fill their tanks with 7.8-cent oil while there was a chance that the price might be reduced. This fear was justified, since announcement was made on July 27 that RFC will assume the burden of higher oil transportation costs on August 1. It was believed that oil prices might be reduced when the subsidy went into effect.

Improved oil stocks in the Pacific Northwest resulted in an Amendment to L-56 on July 10, removing Oregon and Washington from the 50% oil delivery restrictions of the order. No new equipment may be installed, however.

Consideration now is being seriously given to nation-wide gasoline rationing to cut consumption and make available more transportation facilities to haul oil east. It is also considered probable that the "breathing spell" afforded by the ban on eastern heating oil deliveries will be used to work out a rationing plan for fueloil.

The heating season starts in 60 days. In view of the certainty that fueloil consumption will have to be curtailed, burner manufacturers are urging dealers to do everything possible to conserve users' oil, and quickly.

Fueloil Subcommittee of District 1 Surveys 5,543 Oilheated Homes

IT IS SAID that Washington in wartime worships the statistic, that with the return of peace and the demolition of the temporary office buildings along The Mall there is to arise in their place a shrine to the digit, surmounted in simple chastity with a weighted average. In days of "business as unusual," data are indispensable. True, some are too limited in their scope, dangerous rather than useful. Others, like the survey just completed by the District 1 Fueloil Subcommittee, are sufficiently penetrating in their coverage and analysis to establish beyond reasonable doubt facts needed for safe piloting in foggy places.

Much has been said and written about the possibility of converting a share of East Coast domestic oilheating to coal. Big names in Washington offices or in convention speeches have stated this conversion need at anywhere from 10 to 50% of existing oilfired installations. Press bureaus feed the newspapers scare copy in liberal doses, but so far the oilheating public just yawns.

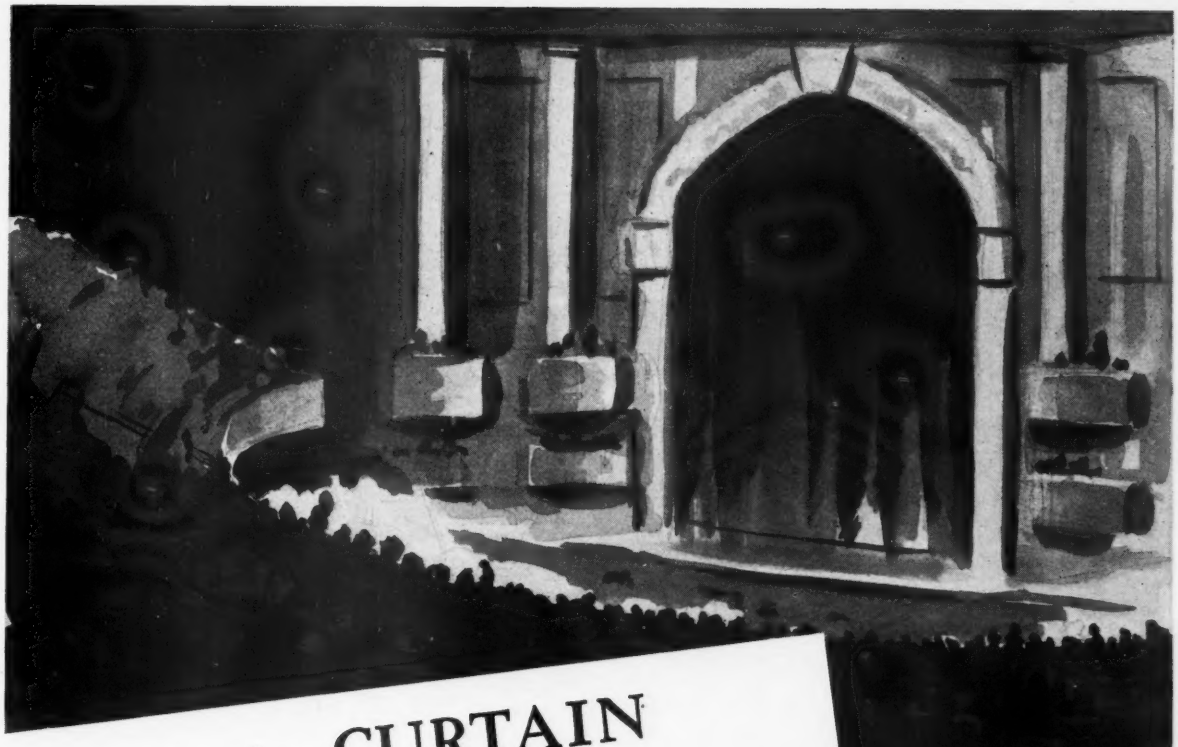
Oil men are concerned; if oilheating conditions become too unpalatable, they'll get the brunt of the cussing. So in order to know just what they'll find behind the eight ball if Hitler succeeds in chasing them back there, they went out last month and asked questions. They went to 5,543 oilheated homes in Middle Atlantic and New England states, the part of District 1 that really uses oil. They went to big towns, little towns, rich folks, poor folks, all the way from Cape Hatteras to Eastport. They surveyed the homes, their heating plants, the inclinations of their occupants. Two separate groups made the investigations, unknown to each other until results were in. One group, engineers regularly employed by oil companies, studied 3,524 houses; the other group, specialists in a professional research firm, interviewed 2,019. Results were nearly the same; they are combined here.

Twenty-six of the heating plants, or less than half of one percent, have been converted from oil to coal in 1942. Fifteen of the owners removed the burners and put back the grates; the other eleven had old plants that fell down . . . to replace them coal boilers were bought.

To better visualize the other findings of the investigators at the 5,543 homes, suppose we funnel these down into a typical neighborhood with 100 oilheated homes. Relatively few in this typical neighborhood said they had given any serious thought to conversion to coal. Thirteen had considered it in varying degrees. Eight of these had done no more than talk about it; of the remaining five, one had had his furnace inspected, one had gotten estimates on costs, one had bought parts to have on hand just in case, one had tried to buy parts and couldn't, one had reached a decision, "No."

The other 87 oilheating users in this typical neighborhood are not interested in the subject. Asked why, 27 say they don't like coal, 19 say their plants cannot be converted anyway, 16 can't afford it, 7 see no necessity for it, 6 rent their places, 5 have new houses and don't want to make changes, 5 have no one to shovel coal, 5 believe it generally impractical, 4 hadn't even thought of it and the last one plans to move.

Going with the householders to basements to look over things and ask questions, the investigators first learned that 47 of these 100 oilfired plants were steam, 38 were hot water, 13 warm air and 2 of other types; 52 of the combined boilers and furnaces were round vertical and 48 were rectangular. Cf considerable surprise, only 51 of the boilers and furnaces now oilheated had originally burned coal, the other 49 had started, unsullied, with



While the CURTAIN is DOWN....

War has lowered the curtain on the oil burner business. But it isn't the end of the play—it's just an intermission between acts.

Behind that curtain there's a lot of activity. Men are busy shifting new scenery into place, changing lights, bringing on different furniture. When the curtain goes up—as it will when victory has been won—a whole new setting will be revealed.

New developments in oil burners and their control will be on the stage when the curtain rises. A new and vastly larger market will be revealed. These are the things that are in process now, behind the curtain.

The next act in the oil burner business will be more interesting, more surprising, more profitable than ever. Don't miss it.

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oil. The age of the burners and boilers or furnaces found in the typical neighborhood was:

Age	Number of burners	Number of boilers or furnaces
1 year or less	10	7
2 years	12	8
3 and 4 years	25	15
5 and 6 years	24	13
7 and 8 years	14	8
9 and 10 years	8	9
11 and 12 years	4	7
13 and 14 years	1	3
15 years or over	2	30
	100	100

Summer supply of domestic hot water from their oilheating plants is enjoyed by 47 of our 100 neighbors, while 8 more have separate oilfired water heaters.

For one reason or another it would be impossible or impractical to convert to coal heating 57 of the homes in our typical neighborhood; with the other 43 it could be done if the materials can be found . . . and the list of needed materials is impressive. To convert the 43 to coal it would be necessary to buy 30 sets of grates and shaker bars, 28 ash pit doors, 22 sets of lugs to hold up the grates, 11 flue dampers, plus an undetermined number of galvanized ash pails, shovels, clinker tongs and pokers. With a million and a half oilburners now operating in District 1, conversion to coal of any important percentage would require a huge accumulation of parts.

To convert to coal the 43 heating plants in the typical neighborhood would cost a total of $2,838, or average $66 each. Since this average includes those homes that have all the needed parts, the cost would be decidedly higher for those who had to buy all parts.

Average fueloil consumption in our 100-home neighborhood last season was 2,020 gallons. But last season in District 1 the weather, as determined by degree-days, was 8% warmer than normal, so normal consumption would have been 2,200 gallons.

Not all of the neighbors used fueloil last season with abandon; many were frugal about it, did all they could afford to reduce heat losses from their houses. In this group are the 51 whose houses are insulated, 27 of them completely insulated and 24 with attic insulation only. Those homes undoubtedly saved an average of 300 to 400 gallons each because of this insulation, perhaps more. Among the 49 householders whose places have no insulation, 2 expect to have it before Fall, some of the others could probably be convinced by capable salesmen.

Weatherstrip on windows and doors was found on 62 of the homes out of our typical 100, and 4 more will have it, come Fall. Storm sash, too, showed up well; 53 homes were found to have them, while 10 more are about to buy some before cold weather.

In a variety of other ways some of the neighbors are doing their best to save fueloil. Last season 21 of them kept their thermostats set lower during the daytime than they had the season before, an average of 3° lower. Thirty-four more plan to do it this coming season. None of them think in terms of uncomfortably low temperatures; mainly they're cutting down to 70° or 69° . . . they had been in the habit of running up to 73 or even 75.

Turning down thermostats at night saved fuel for 40 in our typical neighborhood last season; 7 more plan to do it next season. Unused, or little used, rooms were shut off and unheated in 29 of the homes last season; will be in 7 additional houses next season. Only 74 of the neighbors depend exclusively upon their oilfired central heating to keep warm—the other 26 had some supplementary heat; 19 of them used fireplaces, 5 had portable electric heaters, 3 used kitchen ranges, 2 gas heaters and 1 a portable kerosene heater. Another five homeowners say they will use supplementary heat next winter.

Before the investigator left he asked each of the neighbors how he felt about rationing of gasoline and fueloil (85 out of the 100 drove cars). He quickly learned how most people put first things first. Eighty-one urged cutting gasoline as far as necessary to provide ample fueloil; 10 said the reverse; 9 who had serious problems either way said it's a toss-up.

Putting our 100-home neighborhood back into the little end of the funnel and enlarging it again to its original stature of 5,543 homes, our individual neighbors become percentages. Further, the percentages can with reasonable accuracy be applied to the 1,570,000 oilheated dwellings in District 1, (as of July 1, 1942) for the homes surveyed were carefully selected to be representative.

"Census of Business" Booklet Identifies Fueloil Outlets

FACTS ON FUELOIL DISTRIBUTION are disclosed in a recent booklet issued by the Department of Commerce, "Census of Business, 1939, Retail Commodity Sales —Fuel, Ice and Fuel Oil Dealers." Of principal interest, the booklet shows that 59% of all retail fueloil sales were made by either coal dealers or fueloil dealers, as contrasted to firms who are in the gasoline or general petroleum business. The Department classifies a dealer by whatever line constitutes 50% or more of his sales.

The report analyzes the activities of coal dealers selling fueloil and gives a detailed breakdown of the sales of 1,713 such firms. These 1,713 coal dealers sold in the year, at retail, domestic heating oils with value of $41,217,000. The report also estimates that these coal dealers accounted for 74.8% of all fueloil sales made by coal dealers; thus, fueloil sales by coal dealers were $55,237,000.

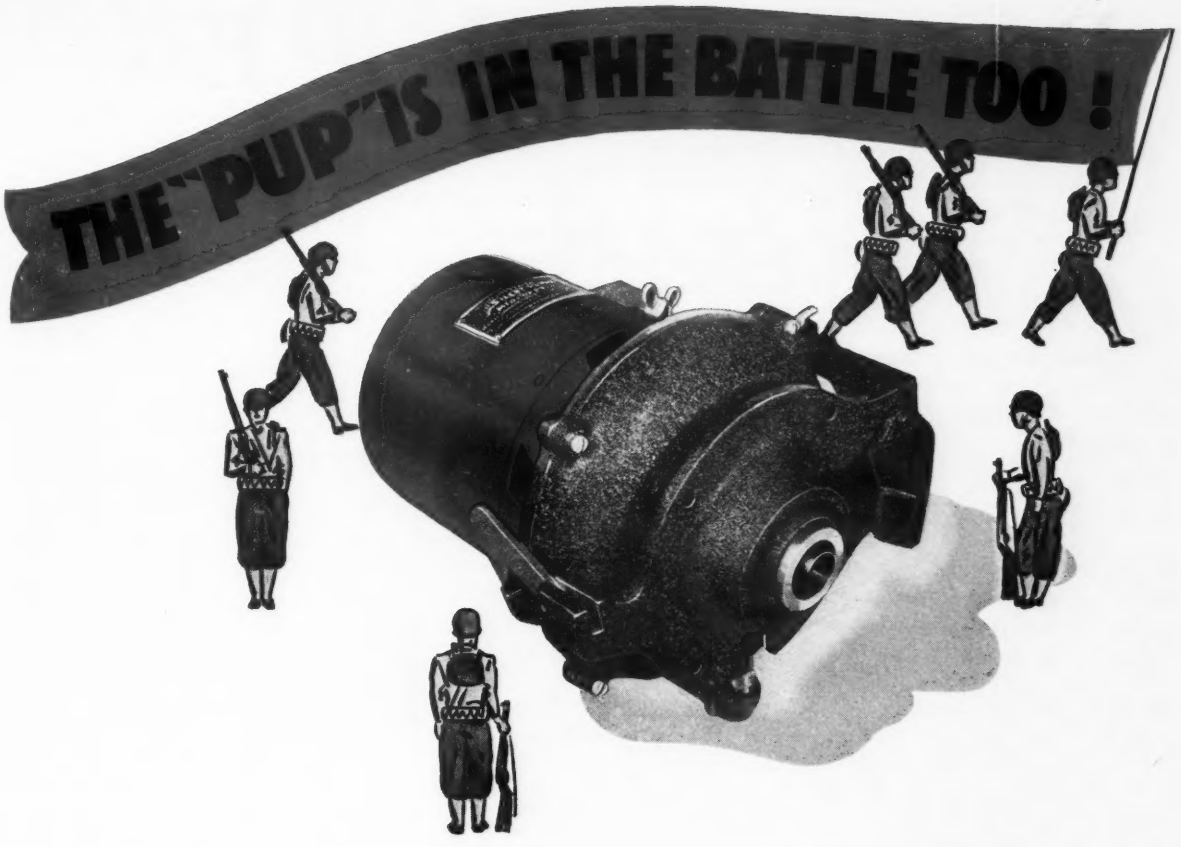
The census report next discloses the domestic heating oil sales made by 881 firms called "fueloil dealers" (because more than 50% of their total sales was fueloil). Fueloil sales by these were $77,359,000. These 881 dealers, according to the report, accounted for 80% of all such sales by dealers of this type. The indicated total, then, of domestic heating oil sales by "fueloil dealers" was $96,699,000.

Total sales of domestic heating oils in 1939 were 4,079,502,000 gallons (U. S. Bureau of Mines). Average retail price, based upon New York, Boston, Washington, Chicago and St. Louis, was $.0634 per gallon in that year. Total domestic heating oil sales at retail, then, were $258,640,327.

Shown in percentages:

	1939 Fueloil Sales	Percent of Total
By coal dealers	$55,237,000	21.4
By fueloil dealers	96,699,000	37.4
Total, two groups	151,936,000	58.8
Sales by all others	106,704,327	41.2
Total	$258,640,327	100.0

Although it has been fairly well recognized as a fact, this is the first official data that show how far retail fueloil distribution is divorced from gasoline and general petroleum products.



With the same quiet efficiency which characterized its service prior to the outbreak of war, the dependable Silent Glow "Pup," Model 106, *is now being used in ever-increasing numbers by the armed forces of the United States.*

Modern warfare, with its lightning movements and the necessity for having to fight in out-of-the way corners of the globe, places a tremendous strain on men and matériel. That's one reason why the "Pup" is a useful addition to Freedom's army. That's why Admiral Byrd selected it for use in Little America. Economical, light and easy to move, and efficient under the most difficult conditions, the "Pup" is but further proof of the high quality of design, materials and workmanship of Silent Glow Oil Burners.

Based on knowledge gained from the "Pup's" wartime service, Silent Glow engineers are even now developing a number of improvements which will be of benefit to hotel and restaurant men, manufacturers and home owners in the peaceful days to come. It is this desire for continuous advancement in oil burner design and efficiency which has been responsible for Silent Glow's reputation and leadership through the years.

Today, our facilities, resources and abilities are pledged to our country. Tomorrow—and may it not be far-distant—it is our hope that we may, once again, place at your disposal our entire craftsmanship and service which have made the name of Silent Glow synonymous with the best in oil heating equipment.

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fueloil & oil heat

Duct Design Made Easy

Formula and Table Give Stack Sizes From Heat Loss Data

By
Allen Livar*

Warm-air heating is now standard in all single family defense homes. Here are data that any competent oilburner dealer can use to design the ductwork for such a house and know each room will be heated properly.

THE APPLICATION of a simple formula and the use of the accompanying table solves many problems of duct design that confront oilheating dealers. Though large heating and cooling systems are designed by specially trained airconditioning engineers, small jobs are usually installed by dealers who do not have such engineers in their own organization and who do not know where to go for help. A ready solution to the simple duct design problems should be useful to these dealers.

If the dealer maintains his own sheet metal shop, he will doubtless have a man in his employ capable of laying out duct systems that will work right. Periodically he will want to check this man's work. If the dealer sublets his ductwork, he also needs a means for checking the pipe and duct sizes the independent sheet metal shop proposes to furnish for a given job. Also, a dealer may wish to make his own duct layout, obtain bids from several shops, and thus buy sheet metal to better advantage. All such organizations, by using the ready-made solutions in this article, can save time and money, and produce scientifically designed jobs.

Most airconditioning engineers use a standard friction chart for laying out duct systems. After the Btu requirements are established for each room in a given building, the engineer determines the amount of air each room requires, and then, with the aid of a friction chart, arrives at the number of square inches of duct area that will be needed for a given load.

To make this process easier, Table 1 gives the pipe sizes necessary to handle given amounts of air, from 40 cfm to 2,000 cfm. Round pipe sizes, rectangular trunk line, and standard wall stack sizes are set up for each quantity of air. The table has been worked out at .08 static pressure, which is all the resistance that will be encountered in residences or small commercial buildings.

Figures given in Table 1 are based on a gradual velocity increase in the larger

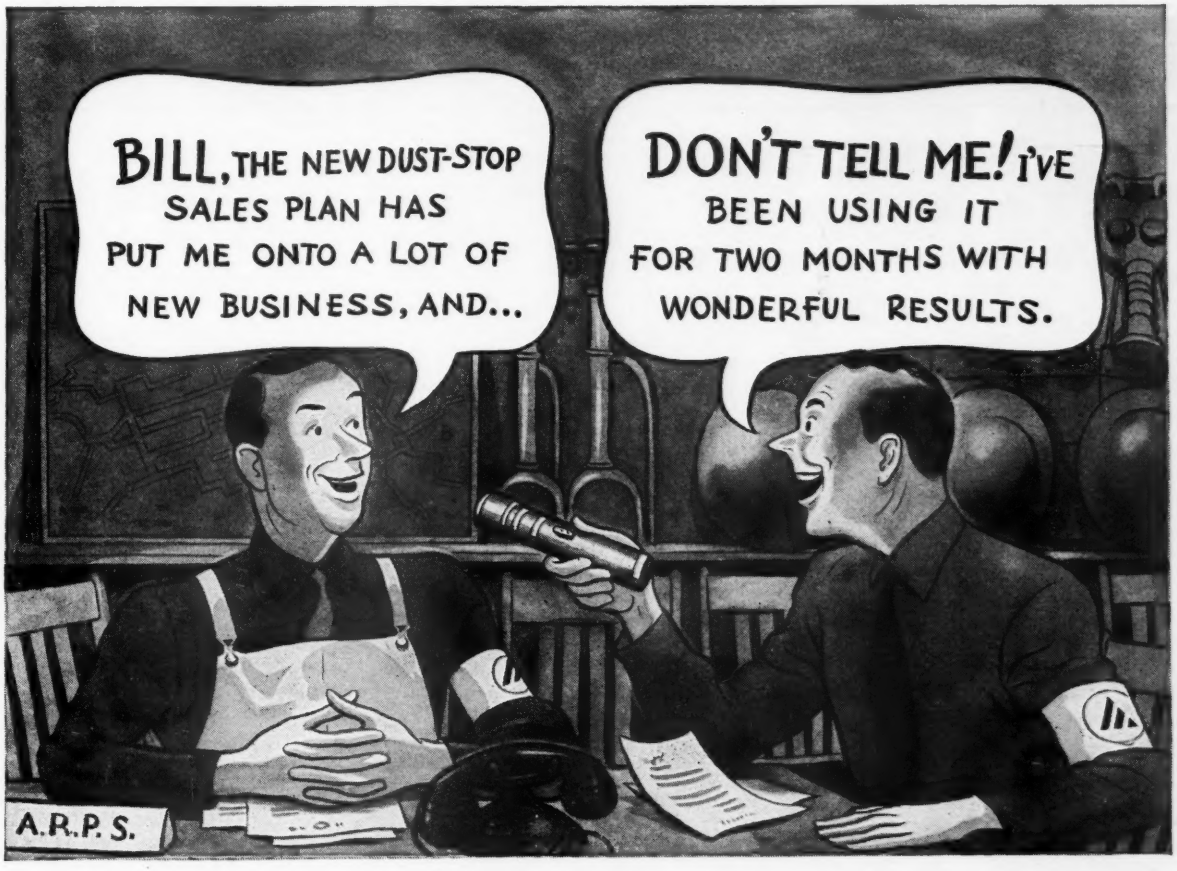
Table 1. Round and Rectangular Pipe Sizes for Forced-Air Heating
CALCULATED FOR A STATIC PRESSURE OF .08

CFM	Round Pipe Size	Rect. Trunk Line	Stack
40	4.7	3 x 8	10 x 3
45	4.8	3 x 8	10 x 3
50	5.0	3 x 8	10 x 3
55	5.1	3 x 8	10 x 3
60	5.3	4 x 8	10 x 3
65	5.5	4 x 8	10 x 3
70	5.7	4 x 8	10 x 3
75	5.8	4 x 8	10 x 3½ / 12 x 3
80	6.0	4 x 8	10 x 3½ / 12 x 3
85	6.1	4 x 8	10 x 3½ / 12 x 3
90	6.2	4 x 8	10 x 3½ / 12 x 3
95	6.3	5 x 8	10 x 3½ / 12 x 3
100	6.4	5 x 8	12 x 3½
110	6.6	5 x 8	12 x 3½
120	6.9	5 x 8	12 x 3½
130	7.2	6 x 8	14 x 3½
140	7.3	6 x 8	14 x 3½
150	7.5	6 x 8	14 x 3½
160	7.7	6 x 8	14 x 3½
170	7.9	7 x 8	2—10 x 3½ / 2—12 x 3
180	8.0	7 x 8	2—12 x 3
190	8.2	7 x 8	2—12 x 3
200	8.4	8 x 8	2—12 x 3½
210	8.5	8 x 8	2—12 x 3½
220	8.7	8 x 8	2—12 x 3½
230	8.8	8 x 8	2—12 x 3½
240	9.0	9 x 8	2—12 x 3½
250	9.1	9 x 8	2—14 x 3½
260	9.3	9 x 8	2—14 x 3½
270	9.4	9 x 8	2—14 x 3½
280	9.5	10 x 8	2—14 x 3½
290	9.6	10 x 8	2—14 x 3½
300	9.7	10 x 8	2—14 x 3½
320	9.9	10 x 8	3—12 x 3½
340	10.1	11 x 8	3—12 x 3½
360	10.4	12 x 8	3—12 x 3½
380	10.7	12 x 8	3—12 x 3½
400	10.8	12 x 8	3—14 x 3½
420	11.0	13 x 8	3—14 x 3½
440	11.3	13 x 8	3—14 x 3½
460	11.4	14 x 8	3—14 x 3½
480	11.5	14 x 8	4—12 x 3½
500	11.8	15 x 8	4—12 x 3½
525	12.0	15 x 8	4—12 x 3½
550	12.1	16 x 8	4—14 x 3½
575	12.4	16 x 8	4—14 x 3½
600	12.6	17 x 8	4—14 x 3½
625	12.8	18 x 8	4—14 x 3½
650	13.0	18 x 8	4—14 x 3½
675	13.2	19 x 8	5—14 x 3½
700	13.3	19 x 8	5—14 x 3½
725	13.6	20 x 8	5—14 x 3½
750	13.7	20 x 8	5—14 x 3½
775	13.9	21 x 8	5—14 x 3½
800	14.0	21 x 8	5—14 x 3½
825	14.2	22 x 8	6—14 x 3½
850	14.3	22 x 8	6—14 x 3½
875	14.6	23 x 8	6—14 x 3½
900	14.7	24 x 8	6—14 x 3½
925	14 8	24 x 8	6—14 x 3½
950	14.9	24 x 8	..
975	15.0	25 x 8	..
1,000	15.2	25 x 8	..
1,100	15.7	27 x 8	..
1,200	16.2	29 x 8	..
1,300	16.7	31 x 8	..
1,400	17 3	34 x 8	..
1,500	17.7	36 x 8	..
1,600	18.2	29 x 10	..
1,700	18.4	30 x 10	..
1,800	19.0	32 x 10	..
1,900	19.4	33 x 10	..
2,000	19.8	35 x 10	..

*Chief heating engineer, Airtemp Division, Chrysler Corp.

Figurin' the Angles

◀ Clever furnace dealers are finding new business in new places ▶


BILL, THE NEW DUST-STOP SALES PLAN HAS PUT ME ONTO A LOT OF NEW BUSINESS, AND...
DON'T TELL ME! I'VE BEEN USING IT FOR TWO MONTHS WITH WONDERFUL RESULTS.
A.R.P.S.

These New Dealer Helps can Help to Keep You Busy, too

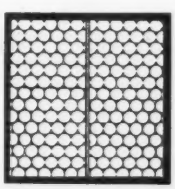
THE WAR'S UNCOVERED a whale of a lot of sleeping business.

In peacetime, most people didn't think it was important to keep furnaces in tip-top shape. Today, these same people are as attentive to their heating plants as they are to their auto tires.

They are *anxious* to keep their furnaces clean and in perfect repair. They are *anxious* to keep filters in warm-air furnaces at peak efficiency.

Replacing those filters can net you up to $2 or $3 a year on every warm-air furnace you service. And making these replacements gives you a perfect opportunity to check a heating plant and call the owner's attention to necessary maintenance work.

Here's How Dust-Stop Helps You*—We'll furnish you with (1) radio scripts, (2) newspaper mats, (3) mailing pieces, (4) follow-up postcards, (5) card file for names and call-back dates, (6) reminder stickers for furnaces—and every one of them has your name and address imprinted FREE!



But that's not all . . .

In addition you have the backing of a national advertising campaign which reaches the millions of readers of The Saturday Evening Post, Life, Better Homes and Gardens, and American Home! How can you miss?

Profits?

You can work on from 200 to 300 furnaces a year at least. Add up your service charges and profits from repair work and filter sales—and, brother, that ain't sneezing money!

Start after this extra business right now—*today*. Get in touch with your distributor and ask him to show you Dust-Stop's BIG 1942 Sales Plan, "Pulling Profits Out Of The Air." *Owens-Corning Fiberglas Corporation, Toledo, Ohio. In Canada, Fiberglas Canada, Ltd., Oshawa, Ontario.*

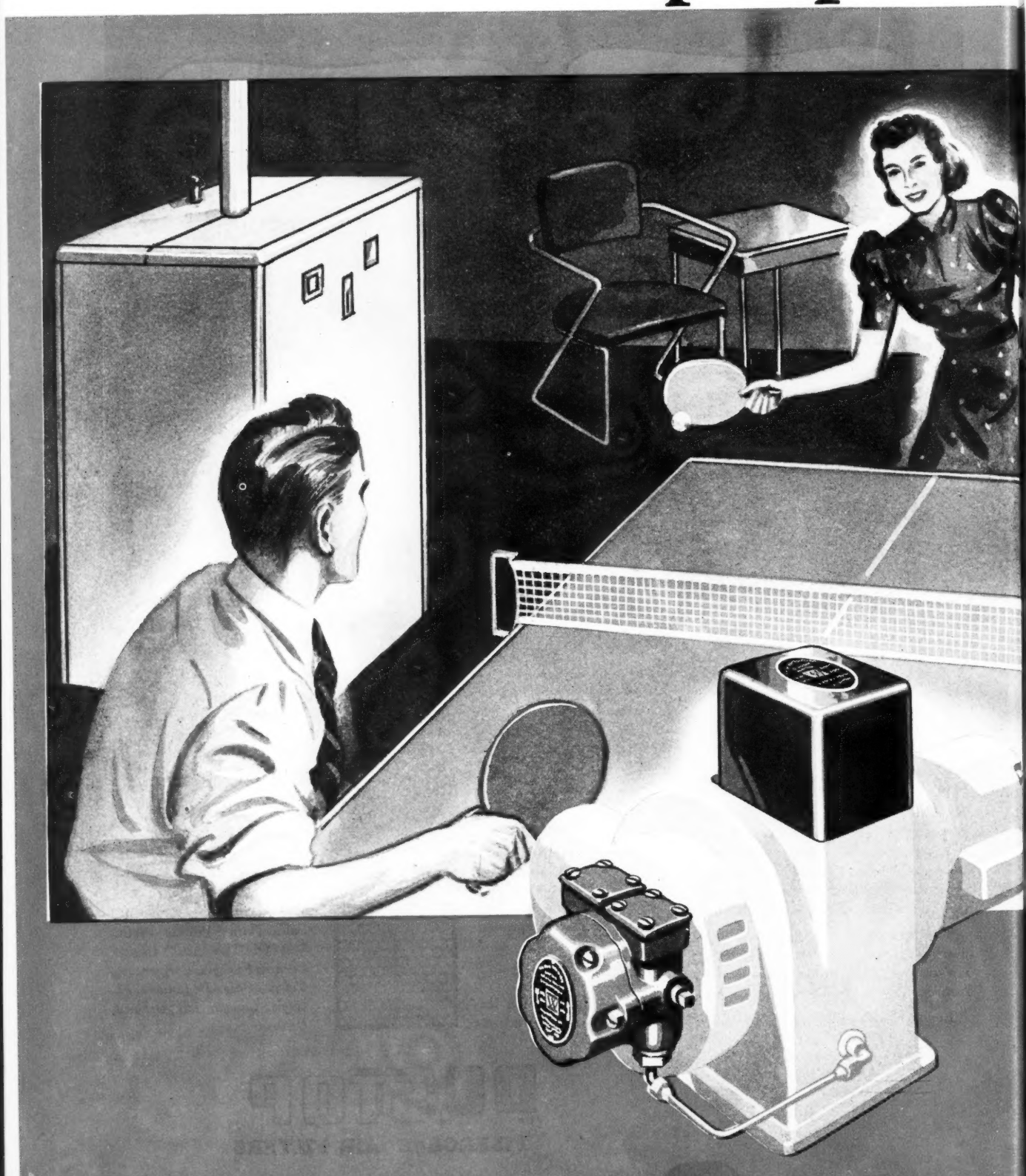
DUSTOP

* T.M.Reg. U.S. Pat. Off.

FIBERGLAS* AIR FILTERS

fuel oil & oil heat

What of the people *to*



to whom you have sold

THERE are literally hundreds of thousands of homes throughout this country that you and your fellow oil burner dealers have equipped with oil burners.

NOW! What about the healthful, comfortable, convenient, economical, automatic advantages and other arguments by which you sold those burners?

It may be assumed that those advantages will be curtailed by the amount of oil which the owners will be able to buy.

Here's where you come in.

All of these people need your help. They need you to regulate their burners so that they will get the utmost heating efficiency out of every drop of oil which they can purchase. They need you to check their burners to keep them at the peak of operating efficiency. They have to depend on you.

We, as well as other manufacturers of oil burner accessories and oil burners, have helped you to sell the hundreds of thousands of burners now in use. It is now our responsibility and the responsibility of these other companies to aid you in assisting the people to whom you have sold these burners.

The Webster Electric Company is in a particularly desirable position to render the assistance you need. Through the services of the sales representatives and service stations listed below, you can secure quick delivery on parts that will keep Webster Electric Fuel Units now in service more efficient; or, if necessary, you can quickly replace a complete Fuel Unit.

In many cases, you will find that poor ignition is one of the main troubles. Here, too, the Webster Electric Service Stations can serve you because they carry a complete stock of replacement transformers to meet any voltage or cycle requirement.

For many years, this company has been one of the oil burner accessory manufacturers who have served your interests by promoting the sale of oil burners through national magazines. Within the last sixty days we have promoted your interests through a national publication by urging the owners of oil burners to look to you for the help that they must have to get the maximum efficiency from their present heating plants.

Remember the people whom you have sold. You needed them when you sold them their oil burners. Now they need you. It is your patriotic duty to help them. And it is your best assurance for the future welfare of your own business.

WEBSTER ELECTRIC COMPANY, Racine, Wisconsin, U. S. A. Established 1909
Export Dept.: 100 Varick St., New York City. Cable Address: "ARLAB", New York City

WEBSTER ELECTRIC SERVICE STATIONS AND SALES REPRESENTATIVES

Ignition Transformers, Fuel Units, and Parts

California, Los Angeles	Garland-Affolter Engr. Corporation	124 W. 4th Street	Sales Representative
California, San Francisco	Garland-Affolter Engr. Corporation	Rialto Building	Sales Representative
Connecticut, West Hartford	Bell Pump Service Company	100 Park Road	Service Station
Illinois, Chicago	Braun Bros. Heating Supply Company	3146 W. Chicago Avenue	Service Station
Illinois, Winnetka	Braun Bros. Heating Supply Company	812 Oak Street	Service Station
Iowa, Des Moines	Delavan Engineering Company	414—12th Street	Sales Representative
Maryland, Baltimore	R. E. Michel Company	1011 Greenmount Avenue	Service Station
Massachusetts, Cambridge	Cronin Supply Company	60 Broadway	Service Station
Massachusetts, Waltham	Cronin Supply Company	157 High Street	Service Station
Massachusetts, Wollaston	W. S. Plummer	109 Lincoln Avenue	Service Station
Michigan, Detroit	Wm. G. Boales Company	6429 Hamilton Avenue	Service Station
Minnesota, St. Paul	Thermal Company, Inc.	2448 University Avenue	Service Station
Missouri, St. Louis	Brass & Copper Sales Company	2817 Laclede Avenue	Service Station
New Jersey, Elizabeth	Certified Fuel Unit Service Company	600 Spring Street	Service Station
New York, Albany	Certified Fuel Unit Service Company	1018 Central Avenue	Service Station
New York, Brooklyn	Eveready Specialties Company	1724 Flatbush Avenue	Service Station
New York, Brooklyn	The Capson Company	106 Rogers Avenue	Service Station
New York, Jamaica	Sid Harvey, Incorporated	138-76 Queen Boulevard	Service Station
New York, Valley Stream	Sid Harvey, Incorporated	104 E. Mineola Avenue	Service Station
Oregon, Portland	Garland-Affolter Engr. Corporation	1233 N. W. 12th Avenue	Sales Representative
Pennsylvania, Philadelphia	Certified Fuel Unit Service Company	3412-14 W. Allegheny Ave.	Service Station
Rhode Island, Providence	Providence Plumbing Supply Company	47 Pine Street	Service Station
Washington, Seattle	Garland-Affolter Engr. Corporation	532 First Avenue South	Sales Representative

WEBSTER ELECTRIC

"Where Quality is a Responsibility and Fair Dealing an Obligation"

duct sizes. Thus a leader duct, which is capable of handling the sum of several wall stacks, does not have to be as large as the combined area of all the wall stacks, as the velocity is greater. When the leader stacks are combined into trunks, the velocities increase again.

Care should be taken to select a fan which will give the correct output against the estimated static resistance of the system. Certain low quality furnace fans are rated on a free delivery basis only, and cannot be depended on to operate against the resistances usually encountered. Fans sold by reputable manufacturers are shipped with tables showing their capacities against ordinary duct resistances.

Assume that a dealer wants to design a forced-air system for a small residence, having a total Btu loss of 85,500. To operate at a register temperature of 135° the Btu loss of each room is multiplied by .0145 to determine the cfm necessary for that room.

Assume also that the heat loss of the house is divided as in the following table, which also shows the cfm requirements for each room, obtained by multiplying the heat losses by .0145:

	Btu			*Cfm @ 135°*
Living room	18,000	x .0145	=	261
Dining room	9,000	x .0145	=	130
Kitchen	8,500	x .0145	=	123
Hall	6,000	x .0145	=	87
Breakfast room	4,500	x .0145	=	65
Bedroom 1	14,200	x .0145	=	206
Bedroom 2	10,000	x .0145	=	145
Bedroom 3	8,800	x .0145	=	126
Bath	6,500	x .0145	=	86
Total	*85,500*			*1,229*

From these calculations the dealer knows that the house will require a furnace having at least 85,500 Btu capacity at the register, and that the fan must handle a minimum of 1,229 cfm at .08 static pressure.

Using the cfm tabulation set up, he turns to Table 1 to find the stack sizes necessary for each room. Working backward, he first determines the size of the stacks necessary to serve each room, then the leader sizes in the basement, and finally the trunk size leading back to the furnace.

Beginning with the living room requirement of 261, he looks opposite 260 in the table and finds that the room can be heated by two standard 14 x 3½ stacks. Register sizes normally will be as long as the stack is wide, and as high as the baseboard permits, the register always having as much free area as the total area of the stack. For this example, assume that register heights are limited to 5 inches. The register used would therefore be 14 x 5, inside dimensions.

The dining room needs 130 cfm. Referring again to Table 1, the dealer finds that it will be served by one standard 14 x 3½ stack. The kitchen with 123 cfm will take a 12 x 3½ stack; the hall with 87 cfm will take a 10 x 3½ stack, and the breakfast room a 10 x 3. This gives all the necessary leader area for the first floor.

On the second floor bedroom No. 1 requires 206 cfm. Looking opposite the figure 210 in Table 1, the designer finds that the room can be heated by using two 12 x 3½ stacks. Bedroom No. 2 requires one 14 x 3½ stack, and bedroom No. 3 one 14 x 3½ stack. The bathroom, with only 86 cfm, may be heated with one 10 x 3½ stack.

Now that the size of the stack necessary for each room is known, the stacks can be placed in their correct positions on the plan, with due regard for furniture placement, doors swinging back in front of registers, and location of weight-bearing partitions. By superimposing the basement tracing over the first and second floor plans, the exact positions of the stacks as they emerge into the basement can be determined.

Basement Trunk System

When this is done, the dealer begins to design the basement trunk system. Assume for the purposes of this illustration that the living and dining rooms are on one leader, the kitchen and hall on a second, breakfast room and bedroom No. 1 on a third, and the remaining bedrooms and bath on a fourth. Assume, too, that the system is to be made of rectangular ductwork.

The living room and dining room stacks combined provide a total of 391 cfm, the amount necessary to heat these two rooms. The dealer refers again to Table 1 and learns that a 12 x 8 duct will carry this volume of air. The next two, kitchen and hall, have a combined cfm requirement of 210, and so will need an 8 x 8 leader duct in the basement. The next two rooms, breakfast and bedroom No. 1, need 271 cfm, or a 9 x 8 duct. The last three rooms have a combined cfm of 357, making it necessary again to use a 12 x 8 duct. All duct heights are kept at 8-inches where possible to assure sufficient basement headroom.

Now the designer joins the first two leaders, the 12 x 8 and the 8 x 8. The total cfm requirements of the four rooms served by them is 601, equivalent to a trunk size of 17 x 8 at this point. Continuing, he picks up the next two rooms, which bring the total air necessary for the six to 872. The 875 cfm line in Table 1 shows that the trunk at this point must be 23 x 8.

By adding the last 12 x 8 leader, the over all cfm requirement becomes 1,229. The table shows that for 1,200 cfm a duct of 29 x 8 is needed, while for 1,300 cfm a duct of 31 x 8 is necessary. It is evident consequently that a duct 30 x 8 leading back to the bonnet of the furnace will carry the load safely.

Thus, with only the heat loss requirements at hand, the dealer has been able to determine the stack sizes, register sizes, leader sizes, and graduate the basement duct system back to the airconditioning plant, with a minimum of effort and time.

Cold Air Returns

Cold air, or return air requirements for each room may be worked out in a similar manner, always using care that the cold air returns are not choked down on their way back to the furnace through stud and joist spaces. When all-metal returns are used, these should have the same capacity as the heating ducts and stacks for each room served.

It is not necessary to be an airconditioning engineer to lay out a duct system by this method. To sum up, this is the procedure followed:

1. Obtain heat loss on the building by rooms, by standard methods.
2. Multiply Btu totals for each room by the correct coefficient for heating or cooling at the design register temperature.
3. Using cfm, obtain the sizes of sheet metal stacks from Table 1.
4. Locate stacks on tracing plan of building.
5. Combine stacks into leaders on basement plan, using Table 1 to determine the sizes of leaders according to the total cfm of all rooms served by each leader.

means BUSINESS... for Oil-O-Matic Dealers

American home owners must save fuel and save money. And they must do *both* with their present heating equipment. This means a vital job—an immediate job—for every man in the heating business.

With America marshalling men, equipment and resources for all-out War, waste is sabotage. Waste must be stopped, whenever and wherever we find it. On this point there can be no such thing as compromise or neutrality. This is War! Waste is sabotage!

Which side are you on, Mr. Oil Burner dealer? Are your experience and ability on the job for America? Or, is inactivity making you an accomplice in the sabotage that we call "waste?" America needs her trained men in *every* field. There's a job to do. There's a job for *you* to do. It must be done right! It must be done now!

The Oil-O-Matic VICTORY SERVICE Program was born of the present emergency. It enables Oil-O-Matic dealers to serve America as *heating* men. This new program gives Oil-O-Matic dealers all four of these big opportunities to: 1. Aid America's War effort; 2. Serve home owners; 3. Expand service business; 4. Realize immediate profits. To other heating men, everywhere, Oil-O-Matic dealers sound this battle cry: "Let's keep the faith! Let's do *our* job!"

SEE how Oil-O-Matic dealers are serving as "task" forces in seeking out and stopping waste! Write in now for a complete VICTORY SERVICE Packet.
Oil-O-Matic
VICTORY SERVICE PROGRAM
WILLIAMS
OIL-O-MATIC
HEATING

WILLIAMS OIL-O-MATIC HEATING CORPORATION
BLOOMINGTON, ILLINOIS

fuel oil & oil heat

6. Combine leaders into trunk system, using the combined total of all cfm for the rooms served.

7. After all leaders are combined, the final size will go back to the airconditioning system, and attach to the plenum chamber.

8. Determine cold air sizes in a similar manner.

9. If 25% fresh air is necessary, size the outside duct by assuming it will carry one-quarter of the cfm requirements of the total system.

10. When in doubt, always use the next largest size of trunk, leader, or stack.

◈

Canada Limits Oilheating to Homes

CANADIAN OILHEATING during the season ahead is to be limited to one-and-two-family homes, according to a statement June 9 by G. R. Cottrelle, Oil Controller.

"Our present regulations," he said, "will prohibit the use of fueloil for all buildings with the exception of bona fide residences. A bona fide residence, as defined by the order, is a residence used by one or two families only, and not used for any other purpose, such as store or shop. This will be enforced by regulations which will prohibit the delivery of fueloil to all users, except bona fide residences, unless they have a permit from this office."

No mention is made of reducing the quantity of fueloil to these homes.

◈

Daily Rail Movement East Reaches 788,550 Barrels

A NEW RECORD MOVEMENT of 788,550 barrels of oil each day to the East Coast was announced by Petroleum Coordinator Harold L. Ickes for the week ended July 11. Including cars on the way back West for reloading, it is estimated that the East Coast service employed 62,000 cars, taken largely from other sections of the country.

The high record for that week was not held, however, in the next week. Average daily deliveries for four weeks were:

Week ending June 27	720,720 barrels
Week ending July 4	720,510 barrels
Week ending July 11	788,550 barrels
Week ending July 18	749,070 barrels

Average for the full period was 769,710 barrels, not far short of the 800,000 barrel average hoped for by August 1.

More Tank Cars Made Available

THOUSANDS OF ADDITIONAL tank cars have been made available for long-haul service as a result of the Office of Defense Transportation order restricting the use of such equipment in hauls of less than 100 miles, ODT said July 7.

The effect of the order (General Order ODT No. 7) has been to divert products normally carried in tank cars to tank trucks for the shorter hauls.

During May, a total of 125,000,000 gallons of petroleum and petroleum products were moved by tank truck to destinations served in April by tank car.

This represents approximately 14,200 car loads. On the basis of a monthly average of three and a half hauls of 100 miles or less for tank cars, this volume of traffic would have required 4,000 tank cars.

An analysis of tank car movements, now under way, indicates a far greater diversion of tank car traffic to tank trucks during June than in May, ODT said.

Your Part in the
★Madison Service Co., Edwardsville, Ill., here utilizes as a receival meter a Red Seal 3" Compact Meter — tank truck model.
OFFICIAL STATION
U.S.
TRUCK CONSERVATION CORPS
Pledged
U.S. TRUCK CONSERVATION CORPS
★ This sticker — the insignia of the U.S. Truck Conservation Corps — to be affixed to the right-hand cab door of all trucks whose owners and drivers are enrolled in the Corps. Duly authorized stations (service stations, garages, automobile dealers and automobile parts stores) supervise the enrollment and issue the stickers.
NEPTUNE RED

Elliott-Lewis Finds Customers Want Oil

CUSTOMERS of Elliott-Lewis Co., Philadelphia, do not want to convert their oil-fired installations to coal, according to J. E. Rowland, vice-president, who has just completed a survey of 700 users of conversion oil burners. The survey did not cover any customers who have bought oil-fired boiler or furnace units.

Of the customers surveyed, 98% said they do not want to return to coal. Apparently a 10% curtailment in fueloil will change the minds of only 3%, as 95% said they would not convert due to a 10% oil cut. If the cut were 20%, there were 80% of the conversion customers who still would not go back to coal; 64% still would burn oil if the cut were 30%.

People who consider that they cannot possibly convert to coal are 45% of the total. Those who have disposed of their grates and other hand-firing accessories after installing their conversion burners represent 85% of the total.

Mr. Rowland calculates that conversion of 25% of the existing domestic oil-burners in the East to burn coal will require 20,000 tons of cast iron, plus an undetermined number of base sections. The work would require 1,640,000 man-hours of labor, and skilled men are increasingly hard to find.

new "Maximum Use" drive

The government's conservation program for the oil industry enters a new phase

THIS NEW DRIVE by the government calls upon oil companies for increased effort in the conservation of new and used equipment materials, with the chief objective of getting maximum use from such materials. That old, perhaps long unused meter can be reconditioned and be put to valuable use in any of several ways. The meters already in service perhaps can do you services you never before suspected.

Let Your Meters Replace Obsolete Equipment

Refineries, for instance, are discarding run tanks and lines and replacing the gauge tanks with meters. Not only is valuable scrap produced, but part of the equipment may be adapted to other effective uses. While bulk storage plants do not have quite the same opportunities to overhaul outmoded equipment, sometimes it is possible for operators to shift meters to jobs of especial importance.

Conserve Through Metered Receivals

Meters on the unloading lines (a) check discrepancies between true and invoiced receivals; (b) help set up a complete stock control to identify preventable stock losses in plant throughput; and (c) effect direct stock savings.

For instance, as well as providing more accurate measurement of the product input, Red Seal meters with their air release valve eliminate excess air, even during the "stripping" of barge or tank car, and thereby cut down evaporation losses in unloading and primary storage; an incidental, but appreciable saving.

Work Your Tank Trucks Harder—Yet Insure Accurate Deliveries

Idle meters often can be transferred to transport trucks. Now that the government encourages the use of large transport trucks on 130-hrs.-per-week service, it is more desirable than ever that such trucks be metered—if for no other reason than to continuously "recalibrate" the truck tank compartments. Especially on a tough service schedule, the compartments are subject to wall distortion with consequent changes in compartment capacity.

Before installing any Red Seal meter on your transport, check with Neptune as to the correctness of installation.

Care of Meters Under the "U. S. Truck Conservation Corps" Plan

Oil Companies are requested by the government to cooperate also in the new "U. S. Truck Conservation Corps" plan. Truck operators and drivers under the plan are pledged to careful and efficient truck maintenance. This, in the delivery of petroleum products, also implies the proper care of metering equipment; since the most efficient use of the delivery tank trucks depends to a considerable extent upon each truck being meter-equipped.

If there are any points in Red Seal meter maintenance that are not fully understood by your driver personnel or maintenance men, now is the time to ask your nearest Neptune office to supply you with complete instructions. Your periodic inspection of your meters of course is Rule No. 1.

★ Farmers Co-op. Oil & Supply Co., Dighton, Kansas, applies a Red Seal meter, with Round Dial Register, to its delivery tank truck.

NEPTUNE METER COMPANY

Main Office: 50 West 50th St., New York. Branch offices at Atlanta, Boston, Chicago, Dallas, Denver, Kansas City (Mo.), Los Angeles, Louisville, Philadelphia, Portland (Ore.), San Francisco, and Toronto (near Long Branch), Ont.

SEAL METERS

Neptune Red Seal Meters • Gasoline Dispensing Pumps • Meters for: Barge and Tank Car Unloadings • Storage Transfers • Loading Racks • Delivery Tank Trucks.

NEPTUNE RED SEAL METER CO.

fueloil & oil heat

Vaporizing Pot-Type Furnace Commercial Standard Adopted

MANUFACTURERS of vaporizing pot-type furnaces adopted at a confiedence on June 24 proposed commercial standards for the products of their industry.

Copies of the provisions have been sent all manufacturers and if those representing 65% of the industry's total production signify their approval in writing, the standards will become effective January 1.

Scope of the standards includes: furnace design and construction, performance, test codes for both forced-air and gravity furnaces, publication of furnace ratings, informative labeling and guarantees.

Manufacturers may obtain a copy of the proposed standards by writing I. J. Fairchild, Chief, Division of Trade Standards, National Bureau of Standards, Washington, D. C.

G-E First-Half Profits Down

GENERAL ELECTRIC COMPANY'S profit available for dividends for the first half of this year amounted to $20,681,433 or 72 cents a share of common stock, compared with $26,003,665 or 90 cents a share for the same period last year, a decrease of 21 per cent, President Charles E. Wilson announced today. These amounts were after provision for federal taxes on income and for contingencies amounting to $94,000,000 in the 1942 period and $52,000,000 in the 1941 period, an increase of 81 per cent. Before provision for federal taxes on income and for contingencies the Company's total income in the first six months was $114,681,433, or 47 per cent more than in the corresponding period a year ago.

Net sales billed during the first half of this year amounted to $412,383,825 compared with $300,332,085 for the first six months of last year, an increase of 37 per cent.

OBI Changes Aimed at Industry Improvement

REORGANIZATION of Oil Burner Institute has been approved by its Board of Directors to make possible a closer and more effective cooperation between all branches of the business. The plan provides for a tie-in with dealer groups, oil marketers, burner and accessory manufacturers.

Directors meeting at New York, July 14, tentatively approved by-laws which would change the name to Oil Heating Institute of America, and encourage local dealer groups to affiliate as the Oil Heating Institute of their local areas.

It is pointed out that under present organization there is no way for the national association to reach the field with vital information on matters affecting dealers, and there is no available machinery for gathering data necessary to an informed and authoritative presentation of the industry's position.

Preliminary work is being done by R. A. Richardson, special representative of the Emergency Committee of the Oil Burner Industry, under the direction of C. E. Lewis, president of OBI.

M-H Controls for Largest Building

THE NEW WAR DEPARTMENT BUILDING at Arlington, Virginia will be completely air conditioned and will be controlled by Minneapolis-Honeywell pneumatic equipment. It is the largest single temperature control contract in history. The new War Department Building, the "Pentagon," will be one of the finest buildings in Washington. Its periphery of one mile is made up of five sides, each 1/5 of a mile in length. Each section is built separately and occupied as soon as finished. The first section is now completed, the others will be ready some time this summer and next fall. Only 1/5 of the building is shown in the photograph.

The air conditioning systems cool, circulate and filter the air in the summer; circulate and filter in the heating months. Heat is supplied by window radiators circulating hot water. The temperature of the hot water is determined by the intensity of the sun, which is measured by equipment furnished by M-H.

Charles S. Leopold, Philadelphia, is the consulting engineer; Mehring and Hanson, Chicago, and Baker Smith & Co., Inc., New York, are the heating and ventilating contractors.

◈

Buffalo Tank Corp., Buffalo, has issued an exceptionally useful Handbook for fueloil and oilburner men, containing design data and general information on fueloil and hot water tanks, including tank capacity charts, how to find capacity of irregular tanks, heat losses from pipes, safe working pressures, etc.

There's already a "Second Front" in the Oil-Burner Industry!

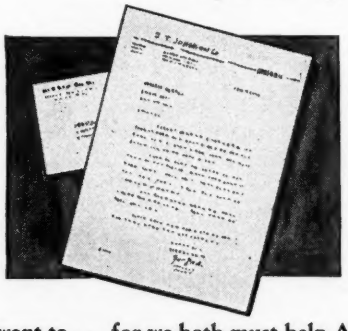
It's the campaign against cold homes and underpowered factories throughout America in the winter that's coming.

Answering the challenge, the legions of good Americans who service and sell and build Oil-Burners are springing into action . . . carrying, not guns but Stilson wrenches . . . riding, not tanks but service trucks . . . reading blueprints, not maps.

It's a good fight, and a tough one . . . a fight that must be won by Yankee ingenuity and sacrifice and technical skill.

We are in it as you are. Whatever we can do to make your job easier out there in front, we will do . . . swiftly . . . gladly. In the years when this company was growing, you helped us in countless ways. Now, perhaps we can help you.

A letter from the President of **S. T. Johnson Co.**



We want to . . . for we both must help America through this danger, so that there may be a future in which fuel-oil transportation problems are just a bad dream . . . and shortages of steel and copper and brass are something dimly remembered.

Give us a chance to help. We'll try . . . with every ounce of metal and determination at our command.

S. T. JOHNSON CO.
J. C. Johnson, *President*

MEMBER OBI OIL BURNER INSTITUTE

S. T. JOHNSON CO.

940 Arlington Ave., Oakland, Calif. **401 N. Broad St., Philadelphia, Pa.**

Week after week, in leading magazines,* millions read about "Stitch in Time" Service that will help them to CONSERVE FOR VICTORY

*THE SATURDAY EVENING POST
*TIME
*BETTER HOMES & GARDENS

AS AN AUTHORIZED
DELCO OIL COAL GAS HEAT
Minute Man

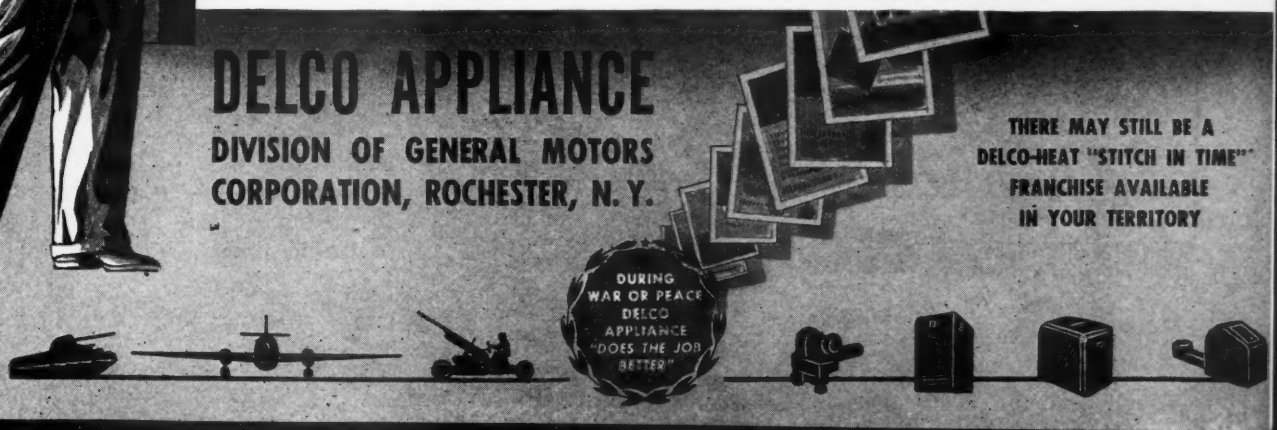
YOU CAN PROVIDE THIS PATRIOTIC SERVICE AND STAY IN BUSINESS PROFITABLY FOR THE DURATION

Delco-Heat's consistent magazine campaign is doing two things. First, it is making the home owner realize the need for guarding his heating plant for the duration. Week after week he reads how the Delco-Heat *Minute Man,* with *"Stitch in Time"* Service, can help him conserve materials and fuel vital to Victory . . . assure health-preserving heat.

Secondly, these ads are bringing customers to the Delco-Heat dealer—enabling him, as an authorized Delco-Heat *Minute Man,* to maintain and build up a profitable service and parts business . . . to keep his organization busy for the duration. In addition, he can fulfill his obligations to his owners and use his facilities to help achieve Victory.

Featured in the *"Stitch in Time"* program are special Heating Analysis Sheets that facilitate heating plant surveys. Other local selling aids include "Conserve for Victory" door opener booklets, direct mail pieces, newspaper ads, spot announcements, banners, posters, decals, stickers, etc.

DELCO APPLIANCE
DIVISION OF GENERAL MOTORS CORPORATION, ROCHESTER, N. Y.



THERE MAY STILL BE A DELCO-HEAT "STITCH IN TIME" FRANCHISE AVAILABLE IN YOUR TERRITORY

Oil-O-Matic Introduces Victory Service Program

OIL-O-MATIC DEALERS in the East were introduced to the company's Victory Service Program in a series of nine clinic meetings from Portland to Norfolk during July. Of chief interest in the clinics was the discussion of the service program, which includes business-getting helps and suggestions.

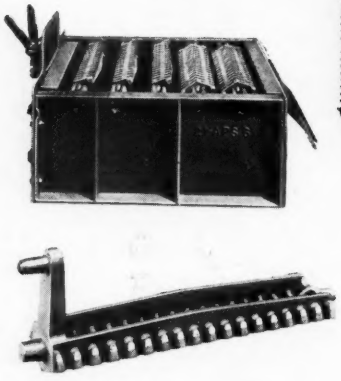
Center of the plan is a home heating survey "in the interest of War Conservation of Fuel and Essential Equipment." The illustrated survey form covers a series of questions on building heat loss; on heating system efficiency; on the heat distribution system; and on domestic hot water. Space is provided for comment and recommendations to the owner on possible ways to save fuel. A system of letters, cards, telephone canvass and follow-up, newspaper advertising and publicity point toward getting an invitation to make the survey.

To help dealers in estimating the extent of savings possible, the company recently has issued Service Bulletin No. 6, entitled "Estimating Oil Consumption." A table shows the fraction of a gallon of 140,000-Btu oil per 1,000 Btu heat loss per hour, per degree-day for different design temperatures and plant efficiencies.

Meetings were held at Charlotte, July 7; Richmond, July 9; Baltimore, July 10; Philadelphia on the 13th; New York the 15th; Boston, July 16; Portland, July 20; Hartford, on the 22nd; and at Schenectady on July 24. Factory and field officials explained the company's position in vital war production and its desire to give all possible help to the dealer organization during the period in which equipment sales are prohibited.

Hank asks—

Are You Being Stepped On Or Stepping On It?



MAYBE it ain't what yer call a Walt Disney funny picture, the way the war has stepped on all our toes.

Maybe it ain't so easy ter be running over with patriotism, when right and left, you are told what yer can't do, and what yer must do, ter help win the war.

Maybe 'tis easier to sit down and gripe about it; but one thing sure, it ain't getting you anywheres fast. Instead of yowling about the business yer can't get, why don't you git out and step on some of the business yer can?

There's conversion jobs for instance. Your Uncle Samuel sez ter git busy and change all the boilers yer can from oil to burning coal. He has told us, we can go ahead and deliver all the necessary parts you need.

But don't think all yer need is just grates. Fur some boilers, you have ter have a new smoke box, new fire doors, a damper regulator, and maybe some other things.

There ain't no use of gettin' a headache trying to figure it out. We have done all that fur yer. Done it in shape of one of the handiest, easiest ter use charts you ever clapped yer eyes on. Just take a squint at it, and you'll know pronto, just what parts are needed and exactly what they'll cost.

Send fur one of these charts right now. Get salt on the tail of these conversion jobs before the other feller beats yer to it.

HANK.

BURNHAM BOILER CORPORATION

Distributed Through Wholesalers

Irvington, N. Y., Dept. O — Zanesville, Ohio, Dept. O

Branch Offices In All Principal Cities

Export Dept. 50 Church St., New York City

Burnham Boilers

Criminal Charges Filed for Misused Heating Priority

CRIMINAL CHARGES were filed July 27 by the Department of Justice, acting for the War Production Board, against Waldo V. Tiscornia, Mayor of St. Joseph, Mich.

In the first such action instigated by WPB, the defendant is charged with violation of the Second War Powers Act, which gives the force of law to all priorities orders and regulations and provides penalties running as high as one year in jail, a $10,000 fine, or both, for violation.

Specifically, the offense charged against Mayor Tiscornia is that he violated the provision of Priorities Regulation No. 1 which requires that any person obtaining delivery of material as a result of a preference rating must use it for the purpose specified in connection with the issuance of the rating.

Facts in the case are as follows:

Last April, Mr. Tiscornia instructed the Auto Specialties Manufacturing Co., of which he is vice-president and manager, to order in its own name approximately $800 worth of cast iron radiators and other heating supplies and to apply to the delivery of this equipment the A-10 rating provided for maintenance and repair material by Preference Rating Order P-100. WPB charges that the equipment was not intended for the permitted purposes of repair and maintenance by the company, but for installation in a new residence then under construction for Mr. Tiscornia's own use.

The materials were delivered under the rating, but information reached WPB's Compliance Branch in time to prevent their installation.

NEW BOOK

to help G-E Dealers 5 ways

1. It will open the door to you for service agreements on many types of heating plants.

2. It will help your customers to make the most of limited fuel supplies.

3. It will help you to do your part effectively in the nation's fuel conservation program.

4. It will help you make or renew contacts with many home owners not now on your books.

5. It will build good will for you—and a foundation for post-war sales of G-E heating equipment.

"Tips on Fuel Conservation" will soon be ready for you to distribute in your territory. It's packed with practical suggestions to help home owners save fuel—no matter what type of furnace or what fuel they are now using.

This timely and informative book, plus our continuing series of consumer advertisements in "home" magazines, is sincere proof of our desire to help you and to prepare the market for future sales by creating post-war demand for G-E heating equipment. General Electric Co., Div. 2488, Bloomfield, N. J.

GENERAL ELECTRIC

fuel oil & oil heat

Socony-Vacuum Asks Customers to Conserve

LETTERS from the Socony-Vacuum Oil Co. went to dealers and customers early in August, urging conservation of fueloil in every possible way to cut demand.

The company pointed out that minimum essential oil demand this winter will exceed the overland supply by 142,000 bbls. and that another 160,000 bbls. are needed to avoid hardship.

"We feel sure," the letter said, "that we shall get the 142,000 bbls. daily, but we are talking about minimum essential demand, which means that every consumer must reduce the amount of fueloil he normally would use."

Spencer Organizes Heating Reserve Corps

A CAMPAIGN TO PROTECT and conserve home heating systems for the duration of the war and to help heating dealers build up their repair and service business has been launched by the Spencer Heater Division of The Aviation Corporation.

Emphasizing that every home owner is a prospect, Spencer Heater has enlisted heating men throughout the country in a "Spencer Reserve Corps." The organization has the following three-point program:

To conserve and protect every piece of existing heating equipment.

To provide an inspection and repair service that will assure the most efficient operation possible of every plant.

To handle, where necessary, replacements of boilers or parts, or conversion jobs from oil to coal.

The company has provided the members with a series of sales letters on the dealers' individual letterheads designed to interest property owners in their territories in an inspection and repair service for existing heating systems. The letters stress that it is a patriotic duty to keep heating systems in good condition in order to conserve fuel and materials.

New Yorkers Make Outing Reservations

MEMBERS and friends of the New York Oil Heating Association have been asked to make their reservations for the annual outing and golf tournament in advance of the event on August 20. The outing is to be held at the Engineers Golf Club, Roslyn, Long Island. Provisions will be made only for the number of reservations received by August 15.

David H. Straus, Jr., vice president of the Straus Bodenheimer Co., Airtemp dealer in Houston, Tex., was lost in the sinking of the aircraft carrier Lexington in the battle of the Coral Sea.

Ralph Gonzalez, Airtemp Div., Dayton, has joined the Ordnance Dept., U. S. Army with the rank of captain.

L. T. Kittinger, vice president in charge of marketing for the area east of the Rocky Mountains for Shell Oil Co., Inc., has been granted a leave of absence to head the Salvage Section of the Materials Div. of the War Production Board. P. E. Lakin, resident vice president in Shell's Chicago office, is to be Mr. Kittinger's successor.

PROTECTION OF BURNERS FROM DIRTY-OIL WEAR IS NOW VITAL

Fulflo Filters remove destructive sediment --cut down costly Service Calls

With new burners out of the picture, present installations must be kept on the job, operating at top efficiency, with as little wear as possible. Fulflo Filters make your important servicing job much easier because they stop such troubles as clogged burner nozzles, scored pumps, and reduced heating efficiency at the source, by removing all the dirt, gum, and sediment from the oil supplied the burner.

When Overhauling a Burner, Add a Fulflo Filter

Customers will quickly see the conservation advantage of a Fulflo Filter, and the savings in fuel and service. You make a desirable profit, and save money on servicing. Write for complete facts! COMMERCIAL FILTERS CORP., 28 West Third St., Boston, Massachusetts.

ONLY Fulflo OFFERS:

1. Positive Depth Filtration..
2. Scientifically Controlled Uniformity

Both Replaceable and Throwaway Units Available

Model AS4 (illust.) replaceable filtering element. Capacity 20 G.P.H. – approved by Underwriters'. Throwaway unit, Model TU4, has same capacity at about half the price.

No other filter operates on the proved scientific principle that distinguishes the FULFLO. A tubular "honeycomb" of interlocking layers of special cotton yarn provides *positive depth filtration,* and traps every speck of sediment and gum. Made in a variety of standard elements for every grade of oil.

Fulflo FILTERS REG. U.S. PAT. OFF.

FOR BURNERS...TANK TRUCKS

★ IMMEDIATE DELIVERIES ★

FIGURE YOUR AIR FILTER COST *by the year*

...not by the unit

Years of long life without need of replacements ... that's the secret of the economy of AIR-MAZE permanent washable air filters. Even though they cost a bit more *per unit* than conventional "throwaway" filter panels the difference in cost is usually made up in a year or less.

After that they still have a life expectancy of 10 to 15 years . . . all pure velvet on the cost side, except for the minor expense of occasional cleaning. For AIR-MAZE filter panels can be cleaned *again and again* to make them like new with all their original performance characteristics.

Add to this the advantage of their superior efficiency . . . *better than 99% by actual test* (practical dust) . . . and you have the important reason for the growing popularity of AIR-MAZE panels for every air filter need. *Approved by the Underwriters' Laboratories.*

Write for interesting data on the economy of AIR-MAZE air filter panels.

AIR-MAZE CORPORATION
5220 HARVARD AVE. CLEVELAND, OHIO

AIR-MAZE
DEPENDABLE AIR FILTERS FOR EVERY APPLICATION

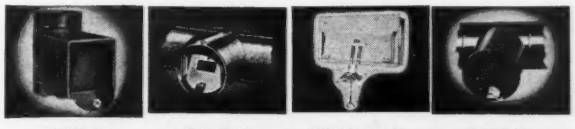
fueloil & oil heat

By the MAGIC *of Conservation* He Produces FREIGHT CARS *from* THIN AIR

By effecting coal and fuel-oil savings ranging up to 25%, FIELD CONTROLS release railroad cars for strictly war consignments.

AND THERE'S MAGIC IN THE SALES VOLUME HE BUILDS FOR MATERIAL RESTRICTED DEALERS

Field Barometric Draft Controls effect remarkable fuel savings. For that reason we still build them. And for that same reason you can SELL Field Controls — easily and profitably — to offices, schools, churches, homes, stores and factories, in your community. The Field Control line is complete from the largest industrial requirements down to a sensational new Type "K" model for coal, oil or gas-fired domestic space heaters. This complete line of Field Draft Controls can keep your sales volume up! Write or wire today for complete details.



TYPE K TYPE M COMMERCIAL 6" TYPE U

THESE FIELD CONTROLS CUT FUEL CONSUMPTION FROM 5% TO 25% IN EVERY INSTALLATION

You serve your country, your customer and yourself when you install a Field Control in every heating plant in your territory. Costing but a little, using but a mite of critical metal, they "keep the home fires burning" on less fuel.

FIELD CONTROL DIVISION MENDOTA, ILLINOIS

HELPS FOR READERS

1941-1942 SPECIFICATIONS BOOK OF OIL BURNERS AND FUELOIL

Gives specifications for 2200 models and makes of burners by 237 manufacturers. Gives grade of oil officially specified for each burner, method of atomization, air source, ignition data, oil feed, gph rating and motor size **50c**
(Bulk purchase orders on request.)

BEACON BOILER REFERENCE BOOK

Contains 7116 listings of boilers and boiler-burner units up to 2,000 sq. ft. steam and equivalent hot water—new, old and obsolete. Complete ratings and specifications on 195 makes, 412 trade names. Particularly valuable regarding old and obsolete models. Gives model number and name, rating, firing rate (coal and oil), heating surface, firebox dimensions, floor to crown sheet, grate size, floor area, base height, chimney dimensions, smoke pipe diameter and whether boiler is steel or cast iron. Also, name and last known address of manufacturer and indication of whether the model is obsolete, or when it was made. 554 pages. Handy size for desk, brief case or desk. Sturdy binding ..... **$3.00** per copy; **$3.25** if sent C.O.D.

PRACTICAL OIL BURNER SERVICE

64 pages of the best articles published in AIR CONDITIONING & OIL HEAT during recent years. Excellent if you want to increase your service business during the war. Many topics covered. How to balance steam systems, increase efficiency, test units, baffle boilers and furnaces, adjust burners, figure combustion chambers, calculate stack loss, etc. **$2.00**

KNOWING THE A TO Z OF CO_2

This invaluable booklet shows you how you can test your customers' burners by modern methods obtaining a high CO_2 rating and a low stack temperature. Be efficient and use this up-to-date booklet in your service work **$1.00**

SERVICE ON ALL MAKES OF OIL BURNERS

This book is essential in your repair and service work. Gives 10 detailed analyses of the most common basic service problems and shows you how to solve them efficiently **50c**

REDUCING FUEL OIL BILLS

This amazing booklet will help you show homeowners, in a language they can understand, how you can save them money. Minimize your customers' oil bills and make a real profit with the right kind of service **50c**

INTERESTING AND VALUABLE BOOKS AND REPRINTS

"Oil Burners," by Kalman Steiner, includes discussion of fundamental and advanced engineering and methods of oilburner design, construction, installation, operation and maintenance. Covers the characteristics, specifications, combustion, handling, and applications of fueloil..... **$4.50**

"Herkimer Service Manual." Now you can buy this famous manual. It is a complete service and installation guide for oilburners, gas furnaces, and stokers written for the expert as well as the beginner. It is distinguished as the bases of the Herkimer Institute courses. **$4.00**

"Oilheating Handbook," by Han Kunitz. Newly revised edition. Clear and concise explanation of oil burner systems and classification. Discusses combustion and heating problems, surveys, installations and retail selling. **$3.50**

"Short Cuts to Heat Loss Data." When you're figuring heat loss you can save time by using this accurate, easy method getting fast results without lengthy figuring..... **25c.**

"Comparative Heating Costs with Oil, Gas, or Coal." Information on how to forecast oil consumption, based on an analysis of over 1300 installations. ..... **25c.**

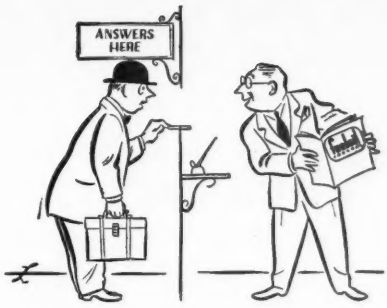
"Selling and Handling Fueloil." A 32 page booklet covers fueloil distribution from bulk plant to customer's tank. Covers planning and operating bulk plants, operating tank trucks, selling fueloil, specifications and variables, automatic deliveries, etc. ..... **50c.**

"Oilburner Combustion Chambers." Complete and concise study, illustrated with charts, illustrations and reference tables. Text covers both precast and those built on-the-job. 23 pages. ..... **50c.**

"Degree Day Handbook." Useful for computing oil consumption by the degree day method. **$3.00**

Because of the thousands of small orders we receive, we ask that cash, stamps, money orders or checks be sent with all orders. If you wish to order C.O.D., an extra charge of 10% is made to cover shipping and collection fees.

FUELOIL & OIL HEAT 232 MADISON AVENUE NEW YORK CITY, N. Y.



Reader's Problems

DUE TO THE LARGE NUMBER OF LETTERS RECEIVED NOT ALL CAN BE PUBLISHED. READERS SENDING PROBLEMS SHOULD ENCLOSE A STAMPED ADDRESSED ENVELOPE TO INSURE A REPLY.

Q. Please advise if you know of any ruling prohibiting the installation of extra tanks for the storage of fueloil for a person who now owns an oilburner and a 275 gallon tank and wants to increase the capacity to 825 or 1,275 gallons.

E.W.S., NEW BRITAIN, CONN.

A. The only ruling that we know of that might prohibit this is WPB order L-79. This prohibits the sale of any heating accessory with a value greater than five dollars, unless under priority number. It would be our belief that WPB would decide the case on this basis. They probably consider a fueloil tank in a home a heating accessory.

◈

Q. We would appreciate it if you will send us the following information:

Question No. 1—What is the comparison of coal and fuel oil in tonnage taking into consideration the efficiency of a coal burning furnace fired by oil and the same furnace converted back to hand-fired hard coal?

Question No. 2—What is the annual national average fuel oil consumption per burner?

Question No. 3—What percent of burners installed are special oil burner units on the Eastern Seaboard? (Including Washington and Oregon).

Question No. 4—How many burners in operation in the above area at the present time?

Question No. 5—Have you any figures available on domestic fuel oil consumption for 1941? What would your estimate be?

Question No. 6—What percent of burners are efficiently adjusted for CO_2 at the present time?

Question No. 7—What would be the average CO_2 on burners installed before 1940?

Question No. 8—What percent of burners sold in the past two years obtain the desired 10% CO_2?

Question No. 9—What do you estimate the rationing will be on the Eastern Seaboard, if any? (My estimate is 20%).

Question No. 10—Do you expect the government to force the conversion to coal?

Question No. 11—What percent of fuel could be saved on an old type oil burner with the following improvements?

CO_2 from 5% to 10%, new insulated combustion chamber, over-the-fire hanging baffle, automatic draft control and general reconditioning of burner.

Have you any ideas on the conversion of oil to coal on the Eastern Seaboard? Will it relieve the transportation situation taking into consideration the fact that fuel

SPOTLIGHT ON SERVICE

TUTHILL •

Thanks to their built-in dependability, Tuthill Pumps and Fuelstats can be counted on to keep present installations operating through these trying days of shortages.

Where repairs or re-conditioning become necessary, Tuthill's war-time service—available at our authorized service stations or at the factory—makes it easy to "keep 'em running" like new. Promptness and economy highlight this dependable service.

WRITE FOR FULL DETAILS

TUTHILL PUMP COMPANY 939 E. 95th St., CHICAGO, ILL.

Recommended for NEW Refractory Economy

FOR BONDING
J-M Heilite is ideal for bonding firebrick with thin joints, wash-coating and patching old linings. Settings are strong and permanent. Comes ready-mixed, works easily, sets without heat.

FOR POURED LININGS
J-M Firecrete handles as easily as ordinary concrete. Will not shrink, crack or disintegrate. Ideal for rotary-burner hearths, combustion chambers, etc.

FOR SEALING
J-M Fireite is an asbestos furnace cement that effectively seals clean-out doors, flue pipes and other furnace parts. Supplied ready-mixed, is easily worked and applied. Adheres tightly to castings, sheet metal or any other clean surface. Air sets without heat.

Write for New Edition of Booklet RC-8A

• Time-tested on thousands of jobs, these durable J-M Refractory Products provide maximum assurance of long life and freedom from maintenance. They are stocked by leading distributors throughout the United States . . . are easily obtainable on short notice. For the name and phone number of your nearest supplier, write Johns-Manville, 22 East 40th Street, New York, N.Y.

JOHNS-MANVILLE JM REFRACTORIES FOR OIL BURNERS

fueloil & oil heat

TO EXECUTIVES:

NOW YOU CAN HELP

Even More...

New Treasury Ruling Permits Purchases UP TO $100,000, in any Calendar Year, of Series F and G WAR BONDS!

The Treasury's decision to increase the limitations on the F and G Bonds resulted from numerous requests by purchasers who asked the opportunity to put more money into the war program.

This is not a new Bond issue and not a new series of War Bonds. Thousands of individuals, corporations, labor unions, and other organizations have this year already purchased $50,000 of Series F and G Bonds, the old limit. Under the new regulations, however, these Bond holders will be permitted to make additional purchases of $50,000 in the remaining months of the year. The new limitation on holdings of $100,000 in any one calendar year in either Series F or G, or in both series combined, is on the cost price, not on the maturity value.

Series F and G Bonds are intended primarily for larger investors and may be registered in the names of fiduciaries, corporations, labor unions and other groups, as well as in the names of individuals.

The Series F Bond is a 12-year appreciation Bond, issued on a discount basis at 74 percent of maturity value. If held to maturity, 12 years from the date of issue, the Bond draws interest equivalent to 2.53 percent a year; computed on the purchase price, compounded semiannually.

The Series G Bond is a 12-year current income Bond issued at par, and draws interest of 2.5 percent a year, paid semiannually by Treasury check.

Don't delay—your "fighting dollars" are needed *now*. Your bank or post office has full details.

Save With . . .

War Savings Bonds

This space is a contribution to America's all-out war program by

FUELOIL & OIL HEAT

oil or the crude must be transported from the Middle West or South and the coal would only have to be shipped from the hard coal area around Scranton, Pa.?

F.W.A., WATERTOWN, N. Y.

A. Insofar as we have the answers, these numbers correspond to your questions:

1. This must allow for some variables, such as how good a job was done in the first place, when conversion was made from coal to oil. In my home is a coal boiler converted to oil, that with good baffling, sealing, etc., has an over-all efficiency in burning oil of 85%. This is probably a higher efficiency than it ever had when burning coal. So it is probably as well to think of equal efficiency for either coal or oil in comparing conversion jobs. Probably oil efficiencies average higher, but it's a hard point to prove, for most people believe the other way, since it was first a coal boiler.

On the basis of heat content per ton of fuel to be transported, oil has much the better of it. The average modern coal car hauls 50 tons. Anthracite coal has about 13,000 Btu's per pound. So the 50-ton car is hauling 1,300,000,000 Btu's. The same weight of No. 2 heating oil (at 140,000 Btu's per gallon of seven pounds) would have 2 billion Btu's, or 50% more than the car of coal. To state it simply, every pound of oil hauled by the badly-crowded railroads contains at least 50% more actual home heating units than a pound of anthracite coal.

2. The annual national average fueloil consumption per burner last season was about 1,815 gal.

3. About 20% of oilheating installations in Eastern States are either integral boiler-burner or furnace-burner units. In addition there are at least an equal number of boilers specifically designed for oil and furnaces for oil that were sold direct to the dealer by the manufacturer, and the dealer sold them with his own conversion burner. So, all told, more than 40% of the installations in the East are complete oil equipment, couldn't handle other fuels.

4. We do not know exactly how many burners are in use in the areas you mention. On January 1, 1941, there were in the 17 Eastern states and D. C. 1,372,124 and in Washington & Oregon 57,501. In the 18 months since that time there has been an overall national increase of about 15%. If you apply that increase to the figures given, you will about have it.

5. Domestic fueloil consumption for 1940, the last year for which official data are available is shown on page 19 of our January Issue. You will see that in the 17 Eastern States consumption that year was about 70 million barrels of 42 gallons. The number of burners in use increased 12.4% from 1940 to 1941. The increase in oil consumption, however, was negligible for there was a decrease in number of degree-days of about 12.8% from 1940 to 1941 in that area.

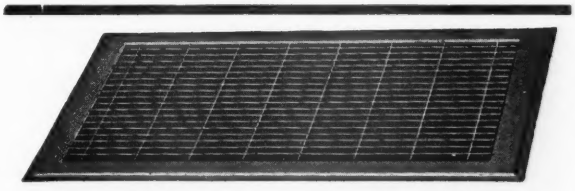
6. No one knows how many burners today meet CO_2 and stack temperature standards of CS75-42 or of FHA, but probably no more than one-fourth of them.

7. Average CO_2 on burners installed before 1940 would be another guess . . . probably 6%.

8. No more than one-third of burners installed in the past two years had 10% CO_2.

9. No one knows what rationing will be—20% cut by some plan looks reasonable, from what any of us can see.

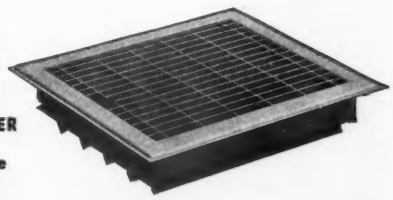
10. Some Government men are now



DuraBilt *Registers & Intakes*

DURABILT Floor Registers and Cold Air Faces have close mesh design in all models—1/2" by 2" on centers. Surplus strength results from amply heavy materials and rigid cross-bar assembly, the bars which form the face being mortised and locked at every cross joint, and also securely interlocked to frame. Frame is welded and reinforced at corners, joints are close fitted and will not pull apart. Entire assembly is extra durable, tight and true, and faces are level and heel-proof. Wherever stout, shock-proof construction is required—use DuraBilt!

To assist you in selecting registers for all purposes, write for new Auer Register Book 42, showing complete line of registers and intakes for warm air and air conditioning. Separate Grille Catalog "G" also sent on request.



THE AUER REGISTER COMPANY
3608 Payne Avenue
Cleveland, Ohio

AUER REGISTERS
& GRILLES · For Air Conditioning *and* Gravity

FOR THE WANT OF A NAIL

EVERYONE remembers the story about the war that was lost "for the want of a nail".

Everyone knows there are many important "nails" needed directly and indirectly to win the war in which we are now engaged. Most important are the supplies and equipment required to maintain the health and general welfare of the people of our nation. For any one of those supplies or equipment may well be the "nail" which could lose the war.

Heating equipment is vital in the maintenance of health and morale. Inferior equipment is costly to operate . . . it wastes the fuel the transportation of which now concerns all of us.

Therefore, it is your patriotic duty to replace inferior oil burners, boilers, furnaces, units, with *efficient* equipment. You owe it to yourself and to your neighbors to install the type of heating equipment which gives most heat from least fuel.

Toridheet was created to *cut* fuel consumption. Almost a quarter-century ago our engineers designed oil burners which were incomparable in performance. The Toridheet line now includes oil burners, oil-burner boilers, air conditioning units, water heaters, coal and gas furnaces.

This is the time to tie up with Toridheet. That's why you should write *today* for complete information.

CLEVELAND STEEL PRODUCTS CORPORATION
TORIDHEET DIVISION • CLEVELAND, OHIO
Oil Burners • Air Conditioning Units • Oil Burner Boilers
Coal and Gas Furnaces • Water Heaters

working on a plan to force some conversion to coal, although no one, including themselves, knows how it can be done. Present outlook is against any drastic forced conversion.

11. The improvements you describe should reduce fuel consumption 25 to 30%, conservatively. You didn't mention stack temperature; should be below 600°.

There are so many angles to the question of relieving transportation, that it's a pretty wide open subject. In our June Issue was an article with one slant on it, "Conversion to Rail." Probably anthracite coal that you mention from the Scranton area will be scarce—at the moment the mines are running 25 days behind on delivery promises, but this may be corrected.

◈

Q. Can you give us any suggestions as to the best method of equipping trucks for the delivery of #6 fuel oil. We have not been making any deliveries of heavy fuel in trucks, but since the government requested us to haul all fuel oil locally by trucks instead of tank cars, we are faced with somewhat of a problem especially as to what preparations to make for cold weather.

If you have any information as to what is done by others along this line such as suggestions for heating, insulation, etc., we would certainly appreciate hearing from you.

H.E.S., LOUISVILLE, KY.

A. With rare exceptions, no provision is being made in the way of extra truck equipment to handle No. 6 fueloil. The oil is heated at the bulk plant or refinery before being loaded to trucks and for all deliveries of a normal nature it remains in a free flowing condition, even in coldest weather.

In the East we cannot find any fueloil distributor using heating facilities on the truck, although a considerable percentage of Northern New Jersey heavy oil is being trucked from Marcus Hook, Pa., or about 100 miles.

Under extreme conditions of long haul and severe cold, an occasional distributor has installed heating pipe through the bottom of the tank and through these the engine exhaust is passed. This would hardly be advisable in your operation unless you are trucking great distances.

Q. I have a cast-iron steam boiler with an oilburner. Every morning when the burner starts all the water in the boiler leaves and collects in two radiators. During the day the water returns to the boiler, but again at night it goes up to the radiators. I have put a cleaning compound into the boiler, without results. I have drained and flushed the boiler several times, to no avail. How can I keep the water in the boiler?

A. R., SPRINGFIELD, MASS.

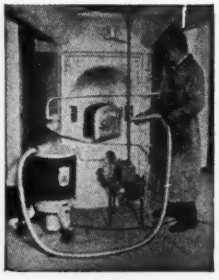
A. Possible reasons for the condition are: 1. In the circuit including the radiators that hold the water the steam pipes or the return lines are undersize. 2. the steam pipes and the return lines do not provide full flow area because they were not reamed properly after being cut. 3. the return lines are partly clogged. 4. steam and return lines are dripped in the wrong direction.

A more remote cause of the trouble, but one easily corrected, is the overfiring of the boiler. If there is a chance that this is the trouble, reduce the firing rate, but be sure the lower rate heats all the radiators in cold weather.

The piping troubles listed above always

Conserve FOR VICTORY

Thousands of gallons of oil are wasted annually because they are burned in a dirty heating plant. Soot causes heating systems to rust out, thus wasting valuable materials that are hard to replace at this time.



The Kent Double Suction Furnace and Boiler Cleaner will remove the soot that causes this waste. It is fast, powerful, sturdily-built. It cleans by vacuum, thus, no fuss —no muss.

Let us solve your furnace and boiler cleaning problems as we have solved many others.

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An inexpensive fuel saving thermostat, recommended to replace regular thermostats on all automatically fired heating equipment or damper motors.

With the Mercoid Day-Night Control there are no chilled rooms before retiring. You control the thermostat instead of it controlling you. A simple twist of the hand and it is set for a lower temperature while asleep, and in the morning before arising, the day temperature is automatically restored.

It meets wartime fuel economy requirements, besides it has a Mercoid corrosion-proof mercury switch, insuring longer control life and better performance.

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But, also, you have a duty to your customers—new equipment and repairs. For home-heat in Defense Housing Areas, we can supply you with Space Heaters, Conversion Burners, Furnaces, repair parts for all LACO burners, as well as primary and secondary controls. WRITE TODAY!

HARVEY COCKLIN

LACO OIL BURNER CO.
Dept. 742, Griswold, Iowa

result in a decided pressure drop between the boiler and the point at which the troublesome radiators are connected to the steam main. They also lead to pressure drops in the return lines.

Piping changes are costly, so it is well to know exactly where the trouble is before doing any work. Take about five ordinary low-pressure steam boiler pressure gauges and correct all to give the same reading at the same pressure. Drill and tap ⅛" female pipe connections into the steam main at various distances from the boiler, extending out to the radiator connections. Install a pressure gauge at each point. Operate the burner steadily for about an hour, reading the pressure on each gauge every 15 minutes.

An obstruction in a pipe or fitting or an undersize pipe or fitting between any two gauges will cause the gauges to show different pressures, the difference being considerable. This is called a "pressure drop."

If you find the steam main satisfactory, install the gauges on the return line. Also, with pieces of rubber tubing, copper tubing, and glass tubing, install a temporary water gauge on the return line. This will show where the water lies in the pipe. The water should be at the same level as the water in the boiler when the plant is cold. During a steam pressure test with the burner operating steadily for an hour, the water line in this gauge may rise to the level of the steam main.

An investigation of this type may take four to eight hours, but it is the shortest method we know to find the actual cause of the trouble.

◈

Greer W. Orton, assistant manager of the purchasing department of the Texas Co. has been appointed Director of Materials for the Office of Petroleum Coordinator for War.

Bruck K. Brown, formerly of Standard Oil Company (Indiana), has been named Assistant Deputy Coordinator by Ralph K. Davies, Deputy Petroleum Coordinator for War.

William S. Shipley, chairman of the board of the York Ice Machinery Corp., York, Pa., was appointed director and vice-chairman of the War Production Board's Small War Plants Corp.

Gilbert & Barker Co., West Springfield, Mass., has received a Treasury Department award in recognition of having 96% employee participation in the payroll savings plan for purchase of War Bonds.

Albert G. Purdue, New Haven consulting engineer on heavy oil heating, has gone out of business, announcing the fact in a refreshing 8-page booklet, spiced with cartoons showing how and why, and telling former clients how they can get along without him.

James C. Tweedell is the new general sales manager of York Ice Machinery Corp., York, Pa., succeeding John R. Hertzler, who is on special assignment for the Army-Navy munitions board in Washington.

The Celotex Corp., Chicago, has moved its general offices to 120 South LaSalle St., effective July 20.

Chalmers Oil Burner Co., Minneapolis, has issued an attractive mailing piece showing eight Chalmers burner models.

Investigate this oil saving baffle

The AGITAIR heat baffle rests on top of combustion chamber, deflects hot gases to sides of boiler or furnace, produces a scrubbing action that speeds heat transfer.

You get higher CO_2 and lower stack temperatures. Made of high quality fired refractory; length 19 inches, but can be reduced to 16 by removing end sections.

Retails at $7.50 in your shop, or $12.50 installed; quickly returns its cost in oil saving. Dealer and jobber discounts bring you excellent profit. Write today.

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JOBS: By providing Dealers with proven equipment for revamping old burners and servicing others—their only salvation for the duration.

OIL: By boosting combustion efficiencies —*Minimum* of 10% CO_2 can be guaranteed where equipment can be properly installed. 5% increase in CO_2 saves roughly 14% on oil consumption.

Write for *your* copy of Catalog D and Circular No. 11141.

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Here is a volume which will help you a great deal. It is made up of the best articles on the subject that have been published in AIR CONDITIONING & OIL HEAT in recent years.

Single ideas, short-cuts and bits of advice in this book will be worth many times more than the purchase price, to you.

The subjects covered are:

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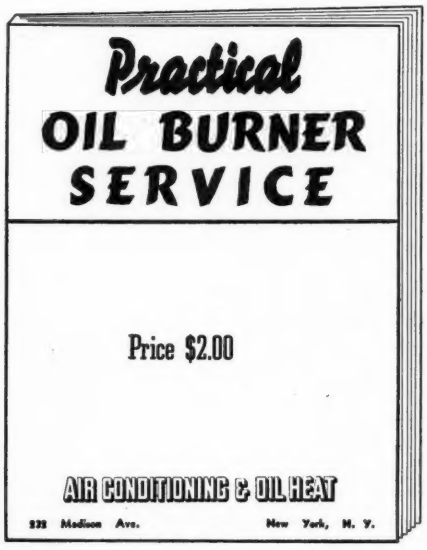
- Theory of oil combustion and CO_2
- How to get accuracy
- How to use an efficiency chart
- How to figure combustion chambers
- How to install for greatest efficiency
- How to baffle a boiler or furnace
- How to test an oil burner installation
- How to adjust a burner without instruments
- How to calculate stack loss
- How to determine the firing rate
- Effect of firing rate on cost
- How to service commercial burners
- How to deliver fuel oil automatically
- The meaning of draft
- How to check a burner
- How to survey a job for estimating and installing a burner



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Present Pipelines Revamped to Help East Coast Supply

COMMENCEMENT OF ACTUAL WORK on the first of six projects in a comprehensive pipeline relocation program designed to increase the flow of oil to the East Coast by approximately 200,000 barrels daily, largely with the use of second-hand pipe, was announced by Petroleum Coordinator Harold L. Ickes.

The project on which work has been started will provide an all-pipeline route from East Texas and Kansas to the East Coast for movement of 25,000 barrels of crude oil daily, mainly through existing systems.

According to reports to the Coordinator, work is in progress on two sections.

In Texas, crews are digging up 111 miles of old 8-inch pipeline which will be used to provide additional capacity on an existing line between Dallas, Texas, and Cushing, Oklahoma. The job, it is estimated, can be completed by July 15, and will increase deliveries to Cushing, via the Texas Pipeline Company system, by 15,000 barrels daily.

The second section under way involves stepping up the capacities of the Texas-Empire Pipe Company's system from Cushing, Oklahoma, to Sheldon, Missouri, and from Valley Center, Kansas, to Sheldon by a total of 30,000 barrels daily. This will be done by installing extra pumping equipment and constructing about 32 miles of additional line, using new pipe already on hand. June 1 is the probable completion date.

According to engineering reports, construction of these two legs of the project will make possible delivery of 30,000 additional barrels of crude oil daily into the Chicago area. Of this amount, 25,000 barrels can be moved on eastward, mainly through existing pipeline facilities. It will be necessary, however, to lay 150 miles of used 8-inch pipe along the Illinois Pipeline Company's main line running eastward across Ohio from Lima, and to reverse the flow of the Tuscarora pipeline across Pennsylvania.

Five other projects, on which the Coordinator's Office has requested that action be expedited, are:

1. Increase in capacity of Plantation Pipeline from Baton Rouge, Louisiana, to Greensboro, North Carolina, so as to enable delivery of 30,000 barrels additional daily to Greensboro. This amount then would be moved northward by an extension of the Plantation line from Greensboro to a point in Virginia northwest of Norfolk. In addition to the extension job, the project will require construction of a 60,000 barrels-per-day pipeline from near Beaumont, Texas, to Baton Rouge, to augment the supply to Plantation line and the installation of additional pumping stations on the Plantation system. Second-hand pipe and equipment will be used.

2. Construction of a 15,000 barrels-per-day products line from Fostoria, Ohio, connecting the Shell and Sohio gasoline pipelines with the Sun-Susquehanna system at Akron, Ohio, for the movement of petroleum products eastward.

3. Reversal of the Keystone-Atlantic gasoline pipeline across Pennsylvania and an increase in the movement through the Socony-Vacuum pipeline from Buffalo, New York, by 10,000 barrels daily so as to step-up the flow through the Sun pipeline system extending southward from Syracuse.

4. Delivery of 50,000 barrels of prod-

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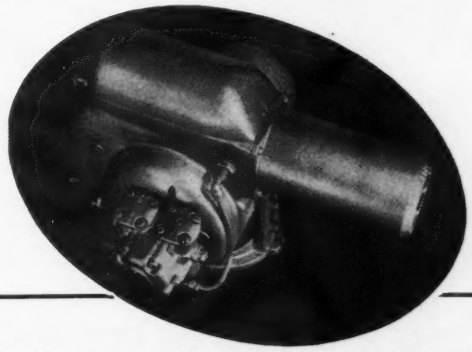
Replacement burners that give satisfaction keep you in the running for sales to future markets. Exclusive Herco features keep customers happy . . . help you build for the better days ahead.

Right now, Herco is working 100% on production of war materials. But Herco has *available for immediate delivery a limited number of Herco Burners.*



All Herco Burners are listed as approved by Underwriters' Laboratories, Inc. for Commercial Standard CS75-39.

HERCO OIL BURNER CORP., LANCASTER., PA.

ucts daily to Helena, Arkansas, for movement by barge up the Mississippi and Ohio Rivers to Pittsburgh where it will be moved on eastward by tank car. This project will involve (a) the reconditioning, rearrangement, and conversion of a crude oil pipeline or pipelines between Port Arthur, Texas, and El Dorado, Arkansas, into a products pipeline or pipelines, and the reversal and extension of such pipeline or pipelines; (b) the reversal of an 8-inch products line between Shreveport, Louisiana, and Port Arthur, Texas; (c) construction of an 8-inch line between Shreveport and Benson, Louisiana, to connect with existing facilities to El Dorado, Arkansas; and (d) the construction of a 150-mile 10-inch pipeline from El Dorado to Helena, Arkansas.

5. Delivery of 60,000 barrels daily of refined petroleum products to a point near Paducah, Kentucky, for barging up the Ohio River to Pittsburgh by (a) the conversion and reversal of a 12-inch crude oil pipeline extending from East Texas to Houston in order to deliver 60,000 barrels per day of refined products from the Houston refineries to a point in or near the East Texas field; and (b) the construction of a 12-inch and a 14-inch pipeline from East Texas to Paducah.

◈

Readers' Forum

TRANSPORTATION ECONOMICS
New York

Dear Sir:

I was very much interested in reading your remarks concerning house-heating conversions.

I am at an utter loss to comprehend the mental processes of those who advocate a single 24 inch pipe line from Texas to Illinois 550 miles long, to relieve a petroleum shortage in the East. To begin with, the Illinois Pool can be tapped to supply all the Lake need more cheaply than oil can be brought from Longview to Salem.

Furthermore, it is 100 miles further to Mount Vernon, Ind., on the Ohio River, and from there by river to Pittsburgh it is 830 miles. From Pittsburgh to New York is 440 miles, making a total trip for the Texas oil from Longview to New York of 1,920 miles.

The distance via Chicago, the Great Lakes and the Erie Canal would be 2,175 miles.

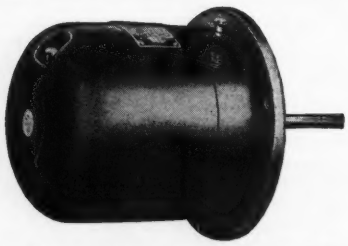
Both these routes would be frozen up more or less in the winter, the very time when the fuel-oil is most needed.

And all the oil that could be squeezed through the 24 inch pipe would be 350,000 bbls. per day, and the cost to be but $35,000,000, though it will inevitably be more. There will have to be not less than 11 pumping stations fully equipped.

Take the self same pipe and cut into 3 equal lengths of 183-1/3 miles. Lay them side by side across Northern Florida. Use one for gasoline and the other two for crude and light fuel oil. There would have to be but 4 pumping stations. Nevertheless 1,050,000 bbls. per day would be the capacity delivery.

It would take a lot of barges and towboats,—probably 600 barges (steel) and 200 tow-boats. Undoubtedly we couldn't begin to scrape together such an imposing fleet of oil barges right off the reel, but, just as we have broken all records in planes, tanks and ships, we would most certainly break them in oil barges. Last January Ickes thought there were but 10,000 tank cars. They have about 60,000

OHIO MOTORS



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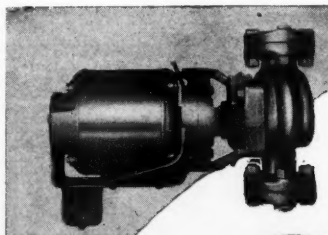

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When emergency maintenance, repairs and replacements call for nozzles . . . Balloffet can help solve your problems by assuring proper burner combustion ratio, reducing CO^2 and preventing waste of fuel. Write for Bulletin. Immediate delivery on rated orders.

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now. Last October Admiral Land ordered over 200 ocean-going tankers at one crack out of the box; those 208 tankers call for more steel than 600—20,000 bbl. oil barges.

If we ship all the steel out of the country as fast as we make it we will bog down at home.

JOHN L. BOGERT, *Associate Editor.*

◈

THE CITY COAL & WOOD CO.
New Britain, Conn.

Gentlemen:

I have been looking over the figures on page 13 of the June issue and if the estimates are reasonably correct it would not seem that our fuel problem should be so serious.

The listed storage accounts for 23% of the consumption. I presume this does not include storage of dealers like ourselves and the storage you specify as not included is quite important. If it is safe to estimate this total storage of 30% and the storage of the general public is 15% the problem should not be so serious if everybody is filled up to begin with.

D. A. JOHNSTON.

Unseen Leaks

By
Richard Lynn

AN INSTALLATION man has just installed an oilburner in a good heating plant and is proud of the completed job. The burner runs like a top, the combustion chamber is the right size and shape, and the flame is even and clean. To doubly assure the homeowner that he would enjoy the economy promised him when he purchased the burner, the mechanic uses his testing instruments to take the stack temperature and the draft and CO_2 readings.

The stack temperature is 450° and the draft is set at .02" over the fire. The CO_2 is not as high as might have been desired, but cutting the air adjustment a little brings it up so that it is satisfactory. The installer is pleased with his work, and as he packs his tools and cleans up the job, he points out a few of the reasons his burner is superior to others on the market. When he leaves, he shows the customer where the service telephone number is printed on the instruction card and tells him to call if service is needed.

Most installers have a genuine interest in good workmanship and try to leave every new job adjusted as accurately as possible. But there is one factor even the best overlook frequently, chiefly because it isn't visible. It was neglected on this job and within two months the customer had ample reason for calling for service. The burner, he said, was consuming too much oil and was sluggish.

Too Close Adjustment

When the mechanic returned, the burner looked much the same, and it appeared to be operating smoothly. However, he noticed that the last adjustment he had made to get a satisfactory CO_2 was a trifle too close for clean operation when the combustion chamber was cold. This had caused the inside of the heating plant and the flues to become coated with soot. He got out his instruments and again tested, finding that in spite of outward appearances, the CO_2 had sharply dropped and the stack temperature had gone up.

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PREFERRED DRAFT-A-JUSTOR
THE ORIGINAL. STILL THE BEST.
HUNDREDS OF THOUSANDS IN USE.
Holds the draft constant in the fire box.
Scientific draft control for the smallest to the largest jobs.
Stove, domestic, and commercial sizes from 4" to 24" in diameter.
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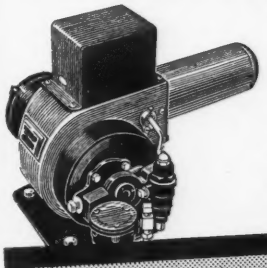
33 West 60th St., New York, N.Y. Boston Office: 839 Beacon St.

• Precision . . . • The more precision in manufacturing, the greater efficiency in operation. That's true of machines in general . . . and oil burners in particular! Quiet May, because it is precision-built from start to finish, delivers maximum comfort on minimum fuel. Now that "oil is ammunition," Quiet May is helping thousands of homes to "use it wisely." May Oil Burner Corp., Baltimore, Md.

QUIET MAY
OIL BURNERS
"SUPPLIERS TO UNCLE SAM"

His use of instruments to help solve the problem led quickly to the trouble. He discovered that it was neither in the way the burner was burning oil, nor in the combustion chamber, nor in the draft, but was caused by air leaks which had not shown up when he had made the final tests at the completion of installation work.

This is the hidden factor that spoils many "perfect" jobs. Immediately after installation, leaks into the ash pit do not show up because cement is fresh and soft, and other leaks are temporarily filled with dirt that lodges in cracks when the boiler is cleaned. After a period of operation these leaks open and and spoil good operation. Visual inspection fails to show any change has taken place, but a check with testing instruments discloses that everything is not all right.

Air leaking into a heating plant carries heat up the stack. The air enters the plant at basement temperature and leaves through the chimney at temperatures varying from 300° to 750°. Calculations of the actual cost of heating this air should be based on the difference between the temperature of the outdoor air and the stack temperature, because all the air taken out of the basement must be replaced by air from outdoors. This loss becomes a sizable item when twice as much air as the fan delivers enters the boiler through leaks. Such is the case when the CO_2 is 5% in the stack and 12% in the combustion chamber.

Overfire Draft

A good way to find out whether or not poor efficiency is caused by air leaks is to take a series of CO_2 readings under varying draft conditions. The draft readings should be taken over the fire. If possible, one of the readings should be taken with a pressure in the heating plant of .01" or .02".

It is only necessary to take two or three readings. If the CO_2 changes rapidly with changes in the draft when the draft is near zero, there are some openings that should be closed. There will be some change in CO_2, because a heating plant is never 100% tight, and because the burner fan will deliver more air when the draft is pulling the air through it than when it pushes air against a pressure. But if the boiler is reasonably tight the change will not be great.

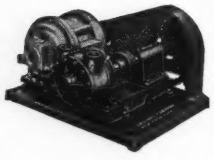
Some manufacturers build secondary air openings into the combustion chambers of their units to aid combustion and produce a more even flame. The draft on these units should be adjusted according to factory recommendations, and CO_2 and draft readings should be taken whenever adjustments are made on the burner.

Boiler leaks probably waste more oil than any other single defect of a heating plant. Sometimes it requires a painstaking search to find the leaks, but usually the largest ones can be found quickly.

WHY EXPERIMENT?

Kraissl Products Offer Proved Performance

Kraissl Class 60 heavy oil pumps



known and used as standard equipment for many years wherever independent pump and motor sets are required and as booster pumps for pump type burners.

Kraissl Class 72 Strainers and Filters

Single and duplex types for suction and discharge service. Any practical degree of filtration. A necessity on every fuel oil line to protect pumps and burner nozzles. Available for low pressures as well as high pressures up to 500 pounds hydrostatic test.

Kraissl-Trumbull #522 Fuel Pump Unit

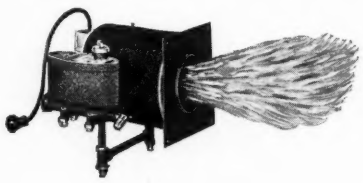
for gravity type oil burners having a burning capacity of not more than 3 gallons per hour. A rugged, dependable, wall pump approved by Underwriter's Laboratories, Inc.

Write for literature and dealers prices.

THE KRAISSL COMPANY
INCORPORATED
295 WILLIAMS AVENUE
HACKENSACK, NEW JERSEY

New Breese Burner Has Horizontal Flame

A NEW VAPORIZING oilburner with a horizontal "gun type" flame has been announced by Cil Devices, Chicago, the product of James L. Breese. The burner



is essentially a Breese burner pot enclosed in a steel casing. The oil valve can be either Automatic Products or Detroit.

Designed primarily for natural draft, the burner also is supplied with a booster where draft is not dependable. The booster motor draws 14 watts. Oil capacities range from 3 CC to 35 CC (.56 gph) on current models, and other models are being developed to burn as much as 2 gph.

The burner has been developed for use with floor furnaces, ranges, low console heaters, and down draft heating units. When used with floor furnaces it allows servicing from above.

◈

Hotstream Heater Co., Cleveland, has issued a revised edition of its "Manual of Information" to cover natural draft oil burning. It brings a condensed, but quite thorough review of combustion efficiency factors related to draft, CO_2 and stack on vaporizing burners.

Monarch Manufacturing Works, Inc., Philadelphia, has mailed to the industry an announcement that stainless steel nozzles may still be had on priorities of A-1-K or better, and that similar nozzles, but of other material, will be furnished on A-10 or better ratings. High priority status on stainless steel is needed to replace the material used.

Sid Harvey, Inc., Valley Stream, N. Y., has prepared a small consumer folder for dealers to mail to customers, showing the advantages of burner renovation to conserve fueloil. Limited quantities will be given to dealers upon request.

Carrier Corp., Syracuse, N. Y., announces the opening of Central Regional Headquarters at 20 North Wacker Drive, Chicago.

AUTHORIZED PUMP SERVICE
Repairing Replacing
TUTHILL PUMPS
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Parts for all Types of Burners
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VISAFLAME
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CONTROL SYSTEM
is a "must" for serious consideration in your plans for the future. Our engineers will cooperate with you. Let's talk it over.
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4219 Belmont Ave., Chicago, Ill.

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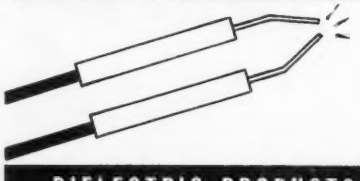

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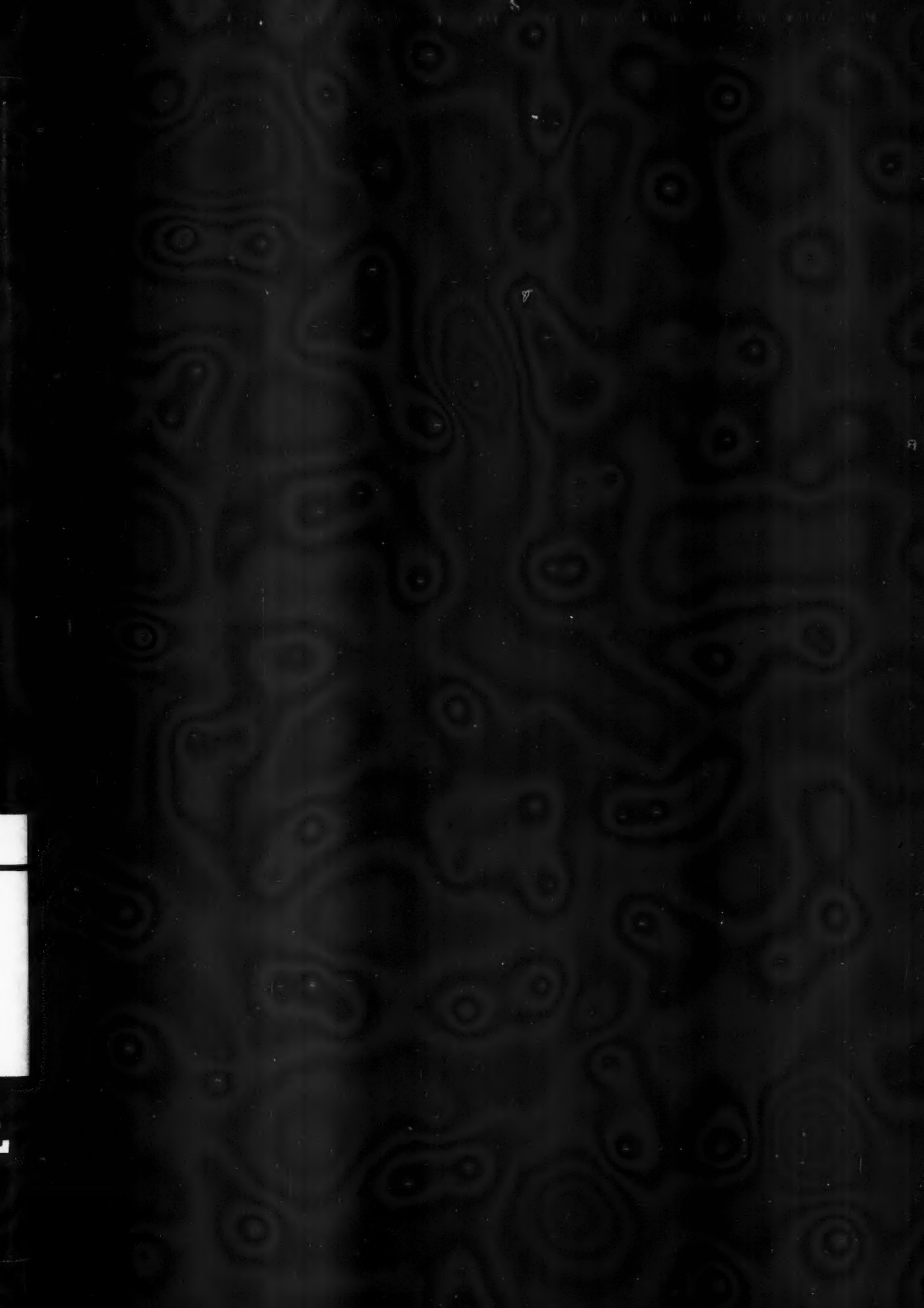
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